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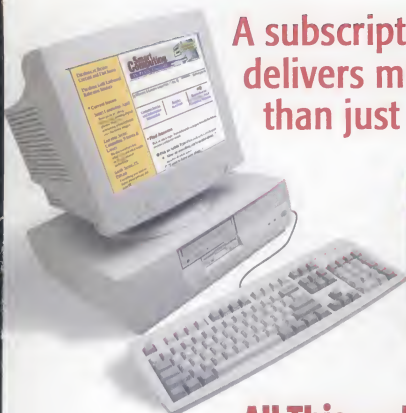
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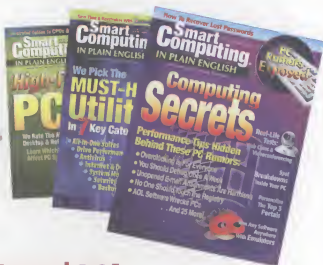
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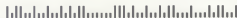
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The Web's Newest Tools

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ACCESS & USE

The Web lets you access information 24 hours a day, seven days a week. However, connecting to and using the Web isn't always easy. Many online and computer companies are trying to change this with their latest devices and tools. Some of the most promising include new browser versions, wireless Internet devices, anonymous e-mail, Web-ready cars, and Web terminals.

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Why They're The Hot Appliance For Your Countertop



PRODUCTIVITY

The Web is such a popular tool because it meets the demands of our fast-paced lives. However, many users don't keep up with the newest online tools, and thus are wasting valuable time struggling with older less-advanced technologies. The newest online tools can improve your searches, spice up your e-mail, get you live customer assistance, block ugly online advertisements, store data online, manage your software, and more.

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- **One-Click Information Services**
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Electronic Payments Are Now A Reality

MULTIMEDIA & ENTERTAINMENT

The Internet is more than a workhorse, it also is a playhouse. Put away your old board games, sell your used books, and give your radio to an antique shop because an Internet-connected PC is the only toy you need. On the Web, you can listen to music, watch movies and Webcasts, read books, share photos, play games, and even build your own Web site.

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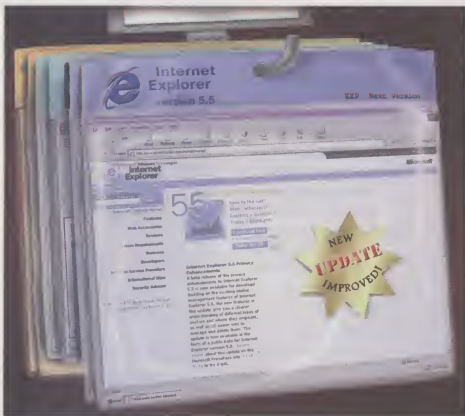
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Browser Breakdown

New Versions Offer Security Enhancements & More Personalization Features



When Microsoft released the software, some reviewers criticized the company for not incorporating enough new features in version 5.5, especially because the beta (or testing) version of the software came out in January 2000. Six months of testing is almost an eternity when browser software is concerned and especially when the visible new features for consumers are rare. However, Internet Explorer 5.5 has plenty of new benefits for developers.

Developer Tools. Most consumers probably won't use most of Internet Explorer 5.5's new features, such as its ability to display text in a vertical layout, even though these tools will benefit them in the end. Web page developers, on the other hand, should find their jobs easier to do thanks to the newest version of Internet Explorer, which includes better support for DHTML (Dynamic Hypertext Markup Language, a specification that uses style sheets and additional scripts, along with Hypertext Markup Language to create more interactive Web pages).

HTML editing. Developers can more easily create WYSIWYG (What You See Is What You Get) pages by editing pages directly through Internet Explorer 5.5 using the browser's new HTML editor, called MSHTML. Consumers can use MSHTML, as well, when viewing Web pages. For instance, a consumer could use the editor to create a personalized product to order through a store's Web page.

Improved design. When Web developers design Web pages for use with Internet Explorer 5.5, the pages will be able to contain more traditional design elements such as the ones in printed media. The new version has improved support for CSS (cascading style sheets, which are style sheets that can be applied to multiple Web pages instead of one), which lets page designers incorporate design elements such as large initial capital letters, pop-up windows, navigation buttons, drop-down menus, improved magnification capabilities, and customized scroll bars. Most of these elements will benefit consumers in the end, making Web pages easier to use and

Web browsers appear to be simple software. You open your Internet connection and type a Web address to open a Web page in your browser.

The process is simple enough. Obviously, though, the inner-workings of a Web browser are more complex. Web browsers have all sorts of features, including tools to save your most recently visited sites and features for viewing content offline. The newest utensils in browsers are personalization features that can help you make the most of your Internet experience.

And the features keep coming. Microsoft and Netscape have both recently released upgraded versions of their browsers: Microsoft Internet Explorer and Netscape Navigator. Some of the less popular types of browsers available, including Opera, have upgraded versions, too. The new features don't involve

must-have components in every instance, but they do involve some components that are key to improving security or that enhance the browser's capabilities.

Internet Explorer 5.5

Typically, when a software company releases a major upgrade to a version of software, it gives it a new version number to the left of the decimal point. When the changes are less drastic, the software company changes the number to the right of the decimal point.

Microsoft's new browser version, called Internet Explorer 5.5 And Internet Tools, came out in July 2000. Even though it wasn't different enough to warrant a completely new version number, it does contain a few new features for developers and consumers alike.

navigate by making them more like traditional Windows-based software.

Designers using Internet Explorer 5.5 now also can more easily design pages for Chinese and Japanese traditional text, which uses a vertical text layout. With previous versions of Internet Explorer, such design elements weren't possible or were extremely difficult to create.

Improved framing. Users will notice that loading pages with frames in Internet Explorer 5.5 is much speedier. Microsoft estimates such pages should load 30% to 75% faster than they did with previous versions of the browser. The reason for this is Internet Explorer 5.5 lets developers display multiple frames within a single copy of the browser software. In previous versions, each frame on the Web page contained a different copy of the browser software, which occupied more of your system's resources and slowed the computer's processing.

Another new feature is that developers can make the pages within frames transparent, which means they can place images in the background.

Improved streaming media. By incorporating some of Internet Explorer 5.5's new features, developers more easily can create Web pages that use more multimedia elements. The new version of the browser can achieve better synchronization of streaming audio and video, allowing for a smoother playback within the browser window. Downloaded multimedia elements should load and run more quickly, as well.

■ **Print Preview.** The Web was supposed to hasten the advent of a paperless society, letting us electronically move documents from location to location. Even though moving documents through Web pages is extremely easy, we still insist on printing those Web pages. We might feel guilty about wasting paper—especially when we know the documents are going to be on the Web site indefinitely—but we do it anyway.

Internet Explorer 5.5 makes printing those Web pages easier (if not quite guilt free), thanks to its new Print Preview command. Click the File menu followed by Print Preview to use this feature.

In the Print Preview window, you'll see exactly how the Web page will look when you print it, including the location of the page breaks. This is a handy paper-saving feature, especially if you want to print only a small portion of the Web page.

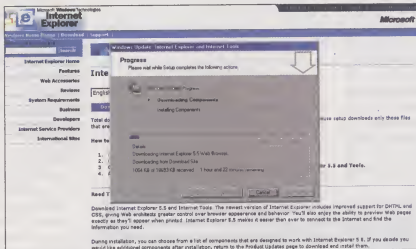
The toolbar across the top of the Print Preview page lets you control the image. Click the Page Setup button (the second button from the left) to set the margins or change your document from a portrait layout to a landscape layout. You also can change the header and footer information printed on each page from the Page Setup dialog box. Unfortunately, you still must use coding to create the effects you want in the headers and footers. For instance, the &u code will print the Web address for the page. Click the question mark (?) button in the Page Setup

If you find yourself often using this especially handy Internet Explorer 5.5 tool, you can make it easier to access by adding it to your Web browser's toolbar. Right-click the toolbar and click Customize. Highlight Print Preview on the left side of the Customize Toolbar window. On the right side of the window, highlight the location on the toolbar where you want the new button to appear. The Print Preview button will appear to the left of the highlighted button on the toolbar. Then click the Add button followed by the Close button.

According to Microsoft, the Print Preview feature was one of the most requested features from customers after the release of Internet Explorer 5. Most Internet Explorer users will find this new feature alone well worth the work to download Internet Explorer 5.5; the other features and improvements are bonuses. (Cynics would note Navigator has incorporated a Print Preview command for a few years already.)

However, if you're a Navigator user, and you didn't find enough features in Internet Explorer 5 to cause you to make the switch, Internet Explorer 5.5 probably isn't going to make you want to switch, either.

■ **Installation.** We found the new version to be extremely easy to download and install. The entire



Downloading and installing Microsoft's Internet Explorer 5.5 browser should take less than two hours if you use a dial-up connection and a 56Kbps.

process took less than two hours using a dial-up modem. You can download Internet Explorer 5.5 from the Microsoft Web site (<http://www.microsoft.com/windows/ie/download/ie55.htm>) for free. You also can order the product for \$10 on a CD through an order form on the browser's home page or by calling (800) 485-2048. For more information about Internet Explorer 5.5, check out Microsoft's Web site at <http://www.microsoft.com/windows/ie>.

dialog box and click the Header or Footer field to see a list of the codes you can use. If the Web page contains enough information, it will split into more than one printed page. To view each of these pages, use the arrow buttons in the middle of the toolbar. Toward the right side of the toolbar, you can shrink or magnify your view of the Web page, ranging from 10% to 500% of the original size. The largest magnification setting will help you see the sharpness with which graphics and text on the page will print; the smallest settings let you view several printed pages at once in the Print Preview window.

Click the Print button to open the Print window and print the Web page. In the Print dialog box, you can select certain pages to print. Click the Close button to close the Print Preview window without printing.

At the time of this writing, Netscape 6, the latest version of Netscape Navigator, was still in beta testing, with the final version due out late in 2000. Even though we didn't have a chance to test the final version for this story,

Netscape 6

At the time of this writing, Netscape 6, the latest version of Netscape Navigator, was still in beta testing, with the final version due out late in 2000. Even though we didn't have a chance to test the final version for this story,

the beta was extremely impressive, containing several new features that will benefit consumers.

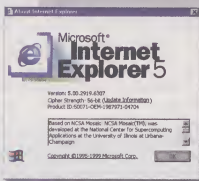
Customization. The My Sidebar feature incorporated in Navigator 6 is impossible to miss; it resides along the left side of the browser window and contains numerous helpful tools. My Sidebar gives you access to several important Web functions, such as a search engine, stock prices, instant messaging, news, and more while keeping the main portion of your browser windows free for loading Web pages. You can even personalize the information in the My Sidebar area, which Netscape describes as a "skinny Web page." You can choose to use My Sidebar's default layout and features, or you can customize My Sidebar to meet your needs by clicking the Add button and Customize Sidebar.

The new version of Navigator gives you the ability to manage your e-mail accounts more easily through Navigator Mail. You can manage each Web e-mail account you have with a separate folder, which lets you easily sort all your e-mail messages. In addition, you can send messages from any of your registered e-mail addresses.

Users wanting to view Web pages in their native language, rather than English, can use Netscape 6's AutoTranslate feature to make the translation. Click the View menu and select the Translate command to begin the process. Corporate users and developers can alter Netscape 6's menus and buttons so they can prevent employees from accessing certain aspects of the browser.

Integration. Users will like Netscape 6's ability to give them one piece of software for performing several Internet functions, such as Web browsing, e-mail management, and instant messaging. For Web page developers, Netscape 6 should provide a vehicle for creating Web pages that incorporate a wide variety of industry standards. The browser fully complies with the

Find Your Browser Version



the middle of the About window to see whether any upgrades are available for your browser version. □

World Wide Web Consortium (W3C) standards, giving developers the chance to use less code to create pages that work well with the major browsers. One drawback to this industry compliance is Netscape 6 may not recognize some of the nonstandard HTML that previous versions of Navigator could read and display. Designers might need to rework pages containing some nonstandard HTML to give Netscape 6 the ability to read them properly.

Security Features. Cookie files are often a confusing and frustrating aspect of using the

To find out which version of your Web browser you're using, open the browser window, click the Help menu, and select the About command. The version number should be along the top of the window. In most cases, you can ignore the digits listed to the right of the first or second number after the decimal point.

With Internet Explorer, you can click the Update Information link in

that companies also can use cookie files to track users' browsing habits without their knowledge.) Through Netscape 6, you can choose to accept or reject cookie files, which is a feature similar to past versions of Navigator. However, you now can instruct Navigator to remember your cookie preferences on a site-by-site basis.

Password management is much easier with Netscape 6 than with previous versions

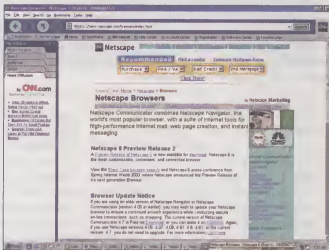
of the browser software, too. Netscape 6 gives you the option of having the browser remember user names and passwords for various Web sites. You also can choose to have the browser remember some passwords but not others. (Internet Explorer 5 already offers this feature.) In addition, a master password used within the Netscape 6 browser protects your password list.

Simplicity. Although the trend for software packages as they evolve is to become more complex and squeeze more buttons and icons onto the screen, Netscape 6 has tried to make its interface more simplistic. Users will notice fewer visible buttons in the standard window. The cleaner look should help users find the features they want more quickly, and it lets users view a larger portion of the Web page in the Web browser window.

Along with this streamlined look, Netscape has compiled a less complex browser engine, giving Netscape 6 the ability to quickly load several types of Web pages. Critics criticized Navigator 5 for containing too many slow-working features.

Netscape 6 incorporates easier search functions, too. Instead of loading a search engine Web page, you can type your search phrase directly into Netscape 6's URL address field and click Search.

Netscape 6 uses Netscape Search, available through Netscape Netcenter, for its directory search and technology from Google for its keyword search. If you prefer to use a different search engine, Netscape 6 lets you select the search engine you prefer by clicking a link after you complete the original



Netscape 6, the latest version of Navigator, has a new interface that includes a more streamlined toolbar and the handy My Sidebar feature.

Internet. However, Netscape 6 should help a little with the management of cookie files, which are files a Web site stores on your computer to help track your personal information. Many sites use cookies to load your personalized settings for the site. (Some industry experts worry

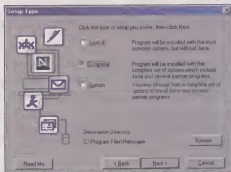
search. Your search results remain in the My Sidebar window, regardless of which pages you load into the main browser window, giving you easy access to the search results no matter which links you follow.

The Search menu at the top of the Netscape 6 window lets you quickly find any of several reference tools, such as addresses, phone numbers, product information, or maps. For instance, you can access an online thesaurus at any time through the Netscape Search menu. This feature is extremely handy... or convenient... or practical. (You get the idea.)

Installation. We installed the beta version of Netscape 6, Preview Release 2, and it was easy to download and install. The entire process required less than two hours. Before you decide to download any beta software, though, keep in mind that such software often contains bugs. After all, it is in the testing stage, and its developers are looking for users to find any bugs that they need to correct before the release of the final version. In addition, most beta versions expire after a certain time period, meaning you must download the full version later anyway. Technical support usually isn't available for beta versions, either.

When Netscape releases the final version of Netscape 6, it should be available for a free download at Netscape's Web site (<http://home.netscape.com/browsers/6/index.html>). Previous versions of Navigator have been available for purchase on CD for \$10, but at the time of this writing, it was unknown whether Netscape 6 would be available for purchase on CD.

We found Netscape 6's Preview Release 2 to be an extremely impressive upgrade, offering a wide variety of features. Even the staunchest Navigator-hater will have a hard time not finding something to like in this version. Users of previous versions of Navigator almost certainly will want to download the impressive final version, when Netscape releases it. Internet Explorer users will want to look at Navigator 6, too. For more information on this browser, visit Netscape's Web site at <http://home.netscape.com/browsers/index.html>.



When installing Netscape 6, you will need to install the Complete version if you want Java capabilities.

still won't meet your needs, but it works well for managing basic e-mail accounts.

The new version of Opera lets you accept and reject cookies based on the Web site from which they originate, just as Netscape 6 does. Another nice feature of Opera is the ability to automatically delete all cookie files as soon as you close the browser's window.

With the new features, Opera 4.02 runs a little slower than previous versions, but it still requires much less storage space and runs more quickly than Internet Explorer 5.5 and Netscape 6.

Opera 4.02

Opera 4.02 doesn't attempt to market itself as a browser containing dozens of features, most of which the average user won't ever use. Instead, Opera attempts to keep its feature list simple, making it work more quickly to display Web pages. Opera also works well on older computers, and it runs on a variety of computing platforms.

Opera 4.02 offers several improvements over the previous version of Opera, including e-mail management and 128-bit encryption for improved security. If you need complex e-mail management features, Opera 4.02 probably

Installation. Downloading and installing Opera 4.02 was extremely easy. Because it is streamlined software, the download and installation process required less than 30 minutes, and we used the Java-enabled version. Downloading and installing the non-Java version should take less than 10 minutes.

You can download Opera 4.02 for a 30-day free trial from Opera's Web site (<http://www.opera.com/download/index.html>). If you want to continue using Opera beyond the trial, you must register the software and pay a \$39 fee (at the time of this writing). Upgrades to previous versions of Opera cost \$15.

You cannot order a copy of Opera 4.02 on a CD, but you can choose to pay for the registered software through the company Web site or by telephone, fax, or mail. Because Opera is based in Norway, though, paying for the software other than by credit card through the Web could be a hassle.

Opera 4.02 offers some nice improvements over previous versions, and the upgrade price isn't overwhelming. (For more information about Opera, visit the Opera Web site at <http://www.opera.com>.) However, it's tough to recommend a fee-based browser when you can obtain Microsoft's or Netscape's browser for free. [E]

by Kyle Schurman

WebTV's Enhancements

If you don't use a traditional browser for surfing the Web, you probably use WebTV. To improve your browsing capabilities, Microsoft introduced a few new features in the summer of 2000.

One new feature is the ability to access instant messages through the Microsoft Network (MSN) Messenger service. You can share instant messages with other WebTV users and MSN Messenger users. This

feature includes support for a "buddy list," as well as blocking features for preventing unwanted messages.

WebTV also has improved support for the RealAudio and Windows Media Player formats, which should give users improved performance from streaming media through the Web. Microsoft added support for a few new printers, too.

Late this fall, Microsoft is expected to roll out its new

interactive TV service: UltimateTV. It will offer improvements over WebTV, including digital video recording and interactive television. Using a new computer chip in the set-top box, UltimateTV users will be able to record two programs at once or play along with game shows, among other features.

(NOTE: WebTV users with older receivers may not be able to take full advantage of these enhancements.) [E]

Look, Ma, No Wires

Gadgets That Help You Stay Connected In The Wireless Age

It's one of the strange paradoxes of modern life that the more we move, the more we need to stay in touch with what we leave behind. Fortunately, a whole crop of wireless Internet devices make it possible to not merely cope with this contradiction, but to revel in it. You now can get the information you want regardless of where you are, and at a price that compares favorably with the wired connectivity alternatives.

■ Wireless Tools. Wireless connectivity begins with one of five pieces of hardware: a pager, a phone, a PDA (personal digital assistant), a handheld computer, or a notebook (portable PC). You must have one of these devices if you plan to send and receive Internet content. That seems simple enough, right? Well, as wireless technology evolves, it

becomes increasingly more difficult to spot the differences among these five platforms. Today, you can find pagers with keyboards, handheld devices that function as phones, phones that function as PDAs, and notebooks that do it all. In the midst of such change, perhaps the best way to find a wireless device that meets your needs is to look at them all.

Pagers. Pagers that connect to the Internet for the purpose of sending and receiving digital messages are called two-way pagers. Each of these tiny plastic devices is smaller than a pack of playing cards and has an integrated wireless communications mechanism, similar to a radio transmitter, that maintains a perpetual connection to a wireless network. When it's turned on, a two-way pager is in constant communication with the wireless network. Relevant incoming signals are processed by the pager's built-

in microchip; a buzz, tone, or on-screen message announces the presence of new data. Outgoing messages transmit back across the wireless network to their destinations, typically at speeds of less than 6,400bps (bits per second).

Although the ability to send and receive electronic messages is the core function of a two-way pager, it is the device's extended capabilities that make it so useful. For example, most two-way pagers now offer some form of message management. This function gives you an effective means of organizing your incoming and outgoing messages. Many pagers also contain a small amount of built-in memory, as well as personal

information management software, which lets you create and store schedules, address books, and personal lists on the pager.

Moreover, many wireless paging networks now partner with content providers to deliver stock quotes, sport scores, news headlines, and other tidbits of information directly to your pager throughout the day. Finally, to make the process more enjoyable, pager manufacturers have recently devised several design improvements that make the pagers easier to use. Many pagers have built-in keyboards and scrolling wheels, for instance. Two-way pagers also offer multiline displays with backlighting, support for simple graphics and images, infrared data ports, and audible alarms.

Price is definitely the biggest drawback to two-way paging. Because of their enhanced functionality, two-way pagers cost substantially more than traditional pagers. Expect to pay as much as \$350 for a robust two-way pager from a reputable manufacturer, such as Motorola or Compaq. For the same amount, you can get a decent handheld computer or a top-of-the-line Internet-enabled cellular phone.

Once you have a two-way pager, however, the cost of using it is quite reasonable. All you need is service with a wireless ISP (Internet service provider), such as GoAmerica (<http://www.goamerica.net>), PageNet (<http://www.pagenet.com>), or SkyTel (<http://www.skytel.com>). Monthly fees are generally \$10 to \$30 and are based on the amount of data transmitted to and from the pager. SkyTel's SkyWriter service, for instance, costs \$24.95 per month for 10,000 characters of transmitted text, plus \$0.10 for every 10 characters after that. Similarly, GoAmerica's Go.Lite plan charges \$9.95 per month for the first 25KB (kilobytes) of transmitted data, plus \$0.10 per kilobyte after that.

Internet phones. Internet-enabled cellular phones, also called Internet phones, have become all the rage in the past year or so. These phones essentially put the power of the Internet in the palm of your hand. You can use them to read complete news articles, get driving directions, access Web sites, receive stock updates, check airline schedules, send e-mail messages, and perform a host of other tasks. That's just for starters. With a little more bandwidth and a bit more functionality, Internet phones could be used to conduct financial transactions, order groceries, pay freeway tolls, play digital music files, change the channel on your TV set, and store all your medical



records. It's easy to see how they could become the most important computing device of all.

Phone manufacturers recognize this potential and have begun in the past year to develop products that explore the boundaries of phone technology. The pdQ smartphone from Kyocera Wireless, for instance, is based on the Palm Computing platform, putting PDA functionality in an Internet phone. Motorola's StarTAC Mobile Organizer is a clip-on device that attaches to Motorola StarTAC phones for the purpose of providing personal information management services to the phone. The Motorola Timeport P8167 doubles as a wireless modem, and the Sprint PCS Touchpoint 2200 supports voice activation. You can expect to see similar innovations from phone manufacturers in the future.

With so many recent hardware developments, it's now time for the content to catch up, says Jay Highley, vice president of the business customer unit at Sprint PCS. Content providers must find ways to deliver business-oriented information and services to Internet phone users.

"We've created very robust infrastructures and databases, and we can provide incredible access to important, mission-critical information," Highley says. "The problem is that you have to be at your desktop to get it. The wireless Web for business is about extending that information to the palm of your hand. We'll deliver content that's relevant to the business customer so that the phone becomes a productivity tool."

Whatever the content, Internet phones are rather easy to understand. When you want to connect to the Internet, you launch the phone's minibrowser. The minibrowser is basically a gateway through which you access Internet content at a speed of approximately 14.4Kbps (kilobits per second). The minibrowser doesn't look like Netscape Navigator, Microsoft Internet Explorer, or whatever Web browser you use on your desktop or notebook computer. Instead, the phone's minibrowser consists of a bland text menu of content options. Shortly after launching the minibrowser, your Internet connection is active.

The cost of accessing Internet content through a cellular phone is a combination of a flat monthly fee for the service and a per-minute charge for actual usage. You can minimize the cost by purchasing a service package that includes a certain number of minutes at a set price. Sprint PCS, for instance, gives you

700 minutes of phone time (to be used for either telephone calls or Internet access) for \$69.99. After adding in the fee of \$9.99 per month for wireless Web usage, you pay less than 12 cents per minute. If you use more than 700 minutes in a month, you pay 25 cents per minute for the extra usage. As you can see, the best deal is to choose a plan that covers your expected needs.

The typical price for an Internet phone ranges from a low of less than \$100 all the way up to \$300 or more, depending on the features you want. You can buy Internet phones directly from a cellular service provider, such as Sprint PCS (<http://s6.sprintpcs.com/store>) or Verizon Wireless (<http://www.verizonwireless.com>); from a phone manufacturer; or from a third-party retailer, such as ROXY.com



You might want to consider a single service subscription when you need to support multiple wireless devices. For example, you can use the GoAmerica wireless service with both a pager and a handheld device.

(<http://www.roxy.com>). You might have to pay a phone activation fee of approximately \$25 when you first sign up for service. To offset this cost, ask the service provider about any rebates you may qualify for.

Handheld devices. Internet connectivity is just starting to become a feature of handheld computers and PDAs. It's about time. Until recently, only a handful of handheld devices (term used to include both handheld computers and PDAs) were capable of performing basic online tasks, such as sending and receiving e-mail messages, tracking stock portfolios, and accessing Web data. Sure, they were useful for all sorts of offline activities, such as taking memos and storing addresses, but without support for network connectivity, these devices risked being displaced by the latest generations of full-function Internet phones.

Internet access for a handheld computer and PDA is possible in one of two ways. The device either contains an integrated wireless modem or it provides an external connector

into which you can plug a wireless modem. If it has an integrated wireless modem, as the Palm V1lx does, you don't have to take any extraordinary measures to access the Internet. Just turn on the handheld device and open the Internet application to establish an active Internet connection.

If, on the other hand, the device doesn't have an integrated modem, then you need to take stock of its external connector to determine exactly what type of modem you should get. Every device requires something different. The iPAQ H3600 from Compaq, for instance, supports a proprietary PC card expansion pack that fits a handheld device like a plastic sleeve. Once you have the expansion pack, you can plug any compatible PC Card device, including a wireless modem, into the iPAQ.

Conversely, the Palm V from Palm uses a special snap-on modem from OmniSky.

You can expect to pay \$200 or so for a handheld device, plus \$300 or more for a wireless modem and other necessary Internet-related accessories. (Note that you might be able to get a hefty rebate on your modem purchase if you sign a year-long contract with a wireless service provider.) Handheld devices that have an integrated modem cost more than those that don't, but the price is almost always less than paying for a handheld device and a modem separately.

In any case, connectivity is achieved simply by activating the device's Internet applications. No dial-up is needed, and transmission speeds typically peak at approximately 19.2Kbps. That might sound slow, but it's actually more than adequate for transmitting e-mail messages, news articles, stock quotes, and other text data. Until a significant portion of handheld devices provide support for full-color graphics and motion video, the low-bandwidth transmission limitations won't cause a problem.

To get Internet connectivity for your handheld device, you need to do two things. First, you must select a wireless modem that works with your handheld device (if you don't own a compatible modem already). Read the users manual or contact the manufacturer to find out which modems are available to you. Have the name and model number of your handheld device handy when you call. Some devices only support one type of wireless modem, and you need to know which one that is.

Second, you must sign up for Internet service with a wireless service provider, such as

GoAmerica or OmniSky. Monthly service with a wireless provider will cost between \$40 and \$60 per month, based on unlimited usage within the specified coverage areas. OmniSky, for example, provides wireless service in more than 115 metropolitan areas in the United States for a monthly rate of \$39.95. OmniSky subscribers enjoy unlimited wireless service as long as they stay within any of those coverage areas. Subscribers who venture outside the coverage areas will be unable to access the service.

Notebooks. The communications activities that take place on a notebook are often more demanding than those that take place on other communications devices. You may use your notebook to look at large color images of products you want to buy, for example, or you may use it to send a database of potential clients to a distant colleague. These sort of Internet-related tasks would be difficult, if not impossible, to conduct on a pager, Internet phone, or handheld device.

Unfortunately, the present state of wireless Internet access makes it quite tedious to access graphics-laden Web sites, large data files, and streaming multimedia content on a notebook. Peak throughput rates of 19.2Kbps, which are adequate for PDAs, Internet phones, and pagers, just aren't robust enough to accommodate normal mobile computing functionality, says Jeff Morris, director of marketing for Sierra Wireless.

"Today, wireless access is useful and functional," Morris says. "You can check your e-mail. You can access a Web site. But you wouldn't want to be surfing the Web. When high-speed wireless networks become available, they will be just like the high-speed networks you have in the office. This will open up new wireless applications, including many that we don't even think of today."

Until then, notebook users must modify their online habits. Limiting the size of file attachments and using a browser's offline browsing features are two ways of dealing with a slow Internet connection. Another option is to sign up for wireless service that has been optimized to perform at artificially faster transmission speeds. The Sprint PCS Enhanced Internet Connection service, for example, uses data compression technology to mimic 56Kbps transmission speeds on a digital network.

Try not to get too gloomy about the state of wireless access for notebooks. High-speed networks are on their way. The most notable is the Metricom Ricochet network, which promises wireless Internet access of 128Kbps in 41 U.S. cities by next summer. You can

prepare for this network by purchasing a Ricochet-compliant wireless modem and checking with the Metricom Web site (<http://www.metricom.com>) to see if high-speed wireless service will be available where you need it.

The best way to purchase a wireless modem for your notebook is to get one through a wireless service provider. Why? Because the wireless market currently supports several network standards, including CDPD (Cellular Digital Packet Data), CDMA (Code-Division Multiple Access), and GSM (Global System for Mobile Communications). Ricochet will be another such network. When purchasing a wireless modem, you must get one that supports the wireless network you're planning to use. Instead of buying a product to match the network, it's easier to choose a network that offers coverage in the places where you work and travel. Then pick up the service provider's recommended modem. Not only will you avoid access problems by shopping this way, but you'll probably get the modem for much less than its retail price.

As far as price goes, you can expect to pay nearly \$500 (not including rebates) for a wireless modem from any of the major manufacturers, including Sierra Wireless or Novatel Wireless. The modems typically come in several formats, but PC cards are preferred because they're small and have no cables. Wireless Internet service, available through companies such as Metricom or AT&T Wireless (<http://www.attws.com>), typically costs \$50 to \$60 per month for unlimited usage.

■ **Gadgets Galore.** The push for faster access, wider coverage, and more device functionality has resulted in the development of some unique wireless gadgets that will definitely wow your neighbors and increase your productivity. We've gathered some of the most impressive ones we could find. You'll be amazed at what some of these devices can do.

AirCard 510

Sierra Wireless
(877) 231-1144; (604) 231-1100
<http://www.sierrawireless.com>

Thanks to a special data compression technology called BlueKite, the AirCard 510 (\$399, direct from Sprint PCS) is able to transmit data at speeds that compare to those of a 56Kbps modem. The only catch is that you have to use the modem on the Sprint PCS wireless network.

iPAQ BlackBerry W1000

Compaq
(800) 888-0220, (281) 370-0670
<http://www.compaq.com>

Just to show how far pagers have come, Compaq advertises the iPAQ BlackBerry W1000 pager (\$399, direct from Compaq) as a wireless e-mail solution. That is definitely a fitting description for the device, which features a built-in keyboard, message organizer, and a function for synchronizing data with Microsoft Exchange and Lotus Domino.

iPAQ H3600

Compaq
(800) 888-0220, (281) 370-0670
<http://www.compaq.com>

The iPAQ H3600 (\$499 MSRP) gives you a color display, one-touch access to the calendar and contacts database, and a built-in voice recorder. Plus, it provides Internet access via add-on Expansion Packs (\$39 for Compact Flash and \$149 for PC Card, both MSRP). These packs, which are essentially plastic sleeves into which you slide the iPAQ, support any PC Card or Compact Flash wireless modem.

Merlin Wireless PC Card for Ricochet

Novatel Wireless
(888) 888-9231, (403) 295-4800
<http://www.novatelwireless.com>

The next big thing for wireless access is high bandwidth, and this modem delivers it—just as soon as the Metricom Ricochet network becomes available (pricing is not available yet, either). You can buy the PC Card modem soon, but you will have to wait until summer for the Ricochet service to begin.



When coupled with service from Sprint PCS, the AirCard 510 from Sierra Wireless provides Internet access at rates that mimic 56Kbps (kilobits per second).



Handheld devices have only recently begun to provide wireless Internet access. The Minstrel V from OmniSky is retrofitted for the Palm V, fitting just like an auxiliary battery pack on the back of the device.

Minstrel V wireless modem

OmniSky
(800) 860-5767, (650) 969-7700
<http://www.omnisky.com>

The much-discussed snap-on modem from OmniSky (\$299, direct from OmniSky) fits onto the back of the Palm V, providing instant Internet access to the handheld device. The modem provides access to the Internet at a rate of 19.2Kbps via a digital network.

Nokia 7100

Nokia
(888) 665-4228, (972) 894-5000
<http://www.nokia.com>

You know this phone was designed for Web access as soon as you see the Navi Roller, a miniature roller incorporated into the face of the phone. You can spin the roller up or down to scroll through the contents of a Web site. Unfortunately, the Nokia 7100 is not yet available in the United States (its price isn't available, either). A similar phone, the Nokia 7110, is currently available in Europe, Africa, and Asia.

PageWriter 2000X

Motorola
(800) 548-9954
<http://www.motorola.com>

The first thing you'll notice about the PageWriter 2000X (\$399.99, from PC Zones at <http://www.zones.com>) is its miniature keyboard, which lets you type entire messages for transmission to PCs, fax machines, telephones, or other pagers. The pager can synchronize with your PC, and it offers full message management capabilities, including confirmed message

delivery. In addition, PageWriter 2000x has a built-in scheduler, notepad, and alarm clock.

Palm VIIx

Palm
(800) 881-7256, (408) 326-9000
<http://www.palm.com>

The Palm VIIx (\$449.98, from PC Zones at <http://www.zones.com>) is currently the only handheld device that has an integrated modem. That's not the best part of Palm VIIx connectivity, though. What's really impressive is the wide array of Web clipping applications (software that delivers only the important data instead of all content from a Web site) available for the Palm VIIx.

pdQ smartphone

Kyocera Wireless
(800) 349-4188, (858) 882-4110
<http://www.kyocera-wireless.com>



Internet phones on the market today can match handheld devices in terms of Internet functionality. The Nokia 7110, for instance, even has a proprietary roller for scrolling through Web content.

The pdQ smartphone (\$799.99, from Sundial.com at <http://www.sundial.com>), which was developed by QUALCOMM (<http://www.qualcomm.com>) and sold to Kyocera Wireless along with the rest of QUALCOMM's consumer phone division, has the unique distinction of being based on the Palm computing platform. The phone definitely looks and acts like a Palm pocket organizer. It has a date book, address book, e-mail client, and mini-browser. It even allows data input using Palm's proprietary Graffiti handwriting software. But dang, it's expensive!

StarTAC clipOn Organizer

Motorola
(800) 331-6456
<http://www.motorola.com>

You can turn any Motorola StarTAC Internet phone into a handheld device just by attaching it

to this clip-on module (\$99, direct from Motorola). The device, which is approximately the same size and shape of an auxiliary battery pack, adds scheduling and message organizing capabilities to your phone. It also provides a data synchronization function for synchronizing data between the phone and your PC.

Timeport P8167

Motorola
(800) 331-6456
<http://www.motorola.com>

Talk about multipurpose. When coupled with Motorola's Data Connectivity Kit (\$149.99, direct from Motorola), the Timeport P8167 Internet phone (\$249.99, direct from Sprint PCS) actually doubles as a wireless modem for your notebook. The connectivity kit contains TrueSync Software and all the cables and software you need to plug this phone (or any of the 12 other supported phones from Motorola) into your notebook.

Touchpoint 2200

Sprint PCS
(800) 480-4727, (816) 759-2300
<http://www.sprintpcs.com>

The Touchpoint 2200 (\$229.99, direct from Sprint PCS) is unique for two reasons. First, it allows you to record up to four minutes of voice memos and messages for playback at a later time. Second, it supports voice activation. You can dial numbers, view the scheduler, or access any of your bookmarked Web sites just by talking to the phone.

■ **What's Next.** You can bet your analog modem that wireless Internet access and services will only get more popular as time goes on. Whether it's integrated into a pager or a boat, wireless technology has innumerable applications that promise to have a positive effect on real life. All that's needed is high bandwidth, and that's on the way. [E]

by Jeff Doda



Hands-free wireless Web browsing is a reality with the Touchpoint 2200 from Sprint PCS. The recent addition of extended functions, such as voice activation, to wireless devices has given the wireless market a boost.

Free ISPs

Will They Replace Paid Services?

If you talk to people who work for free Internet service providers (ISPs), you rapidly get the impression that the biggest news in the computer industry is the impending demise of pay dial-up ISPs. Why pay twenty-some dollars a month, the argument goes, when you can get all the Internet connectivity and features you could want, for free?

Naturally, that point of view is the source of some controversy, with many paid ISPs such as America Online betting the free companies won't survive long term. Nonetheless, the free ISPs are working hard to be competitive with paid services. And some ISPs, such as Earthlink and Juno, are hedging their bets by offering both paid and free options.

■ **The Price Of Freedom.** According to representatives from several free ISPs, there's still skepticism among users as to whether an online connection service can really be free. Yes, it can. But while no money is involved, you do pay by giving the ISP other items of value. Those items are your on-screen real estate and some information.

When your free ISP is running, a small portion of your screen is taken over and devoted to advertising. Usually, the advertising appears as part of a control panel. The control panel offers a variety of buttons that will take you around the service. Clicking one button may bring up your e-mail, for example, while another will bring you your local weather report or retrieve a stock quote. Another may launch a search engine or take you to shopping sites. But no matter what you do, that miniature billboard appears in the center of it all.

In this regard, the ISP is free in the same way that broadcast television or radio is free. It may cost money, but advertisers pay the bill in exchange for a chance to get their messages in front of you.



As NetZero's Brian Woods expresses it, "We'll let you go where you want to go and see what you want to see, but we'll show you commercials." He's quick to point out, though, ISP ads are unlike broadcast commercials in that they don't stop the show.

While many are tastefully designed, other ads use garish colors, animation, blinking text or flashing backgrounds in an ongoing attempt to wrest your attention from your work. Just as with television, the ads run the full range of good, bad, and ugly with their designers often either forgetting or ignoring David Ogilvy's dictum that you can't irritate people into buying your product.

The only way around the ads is to learn to visually tune them out. Control panels are programmed to always appear on top of whatever you have displayed on your monitor. There is no covering them up with other windows.

Jim Shissler, of AltaVista, says that AltaVista has worked hard to add functionality to its control panels to make them as convenient as possible for users without short-changing the advertisers.

Other companies have done the same. Panels can be reduced to take up less screen area. The ads remain the same, but the controls may be smaller and such additional information windows as stock tickers may be closed.

Most panels are now dockable, so that you can move them to whatever part of your screen is most convenient and lock them into place there.

Control panel ads aren't the only advertising you'll face on a free ISP; they are merely the most relentless. Move to any page on the ISP's own site and the odds are that you'll find a banner advertisement there as well. But those ads can be left behind. When you access any other page on the Web, you'll see those pages just as they were designed to be. Some will have ads, some won't, but your ISP won't impose any on you beyond the limits of its own site.

Ads may appear in other ways, though. When you log on to NetZero, for example, you may find a 30-second television-like ad playing while your service loads. And perhaps a pop-up ad will invite

you to visit some other site when you click to log off.

■ **The Annoyance Factor.** Just how obnoxious these ads are depends on several factors, including your own ability to ignore them. At least some of the free ISPs do understand that they won't keep you as a user if you find the advertising more inconvenient than a paid ISP's monthly bill for twenty dollars or more.

NetZero, for example, uses software able to deliver ads to highly targeted markets. To the advertisers, that means their ads will be sent only to those most likely to be good prospects. To you as the user, it means that if you have to be on the receiving end of advertising, at least you'll see ads about things likely to interest you.

It works like this. In signing up for NetZero, you provide a good deal of information about yourself and your interests. So if you let them know that you're a 38-year-old divorced male with no children, interested in football, electronics and motor sports, you probably won't see the banner ad for Auntie Bev's House of Disposable Diapers by Mail. Your 27-year-old sister with the newborn, though, just might.

NetZero can target ads by a number of factors, doing in many ways what direct mail marketers have been doing for years through

postal mail. Even locality can be taken into account, making it practical for local businesses to advertise over an ISP. Your local pizzeria wouldn't want to pay the national rates to reach hundreds of thousands of customers far beyond its delivery area, but they can afford to send you a banner ad suggesting you not cook tonight and get two extra toppings free.

■ **Getting To Know You.** This, of course, is where the other form of payment comes in—information. Free ISPs want to know a lot about you and what you do because that is what makes them so potentially valuable to advertisers. It's not merely the space for them to run an ad, but the knowledge of what types of users click on which types of banner ads and go to which types of links.

When you sign up for a free ISP, expect to answer a lot of questions. Among the information commonly required are your name, age, and address; date of birth; gender; educational level; income range; types of cars you own; whether you rent or own your home; how often you shop online and what types of items you buy; what your recreational activities are; what types of publications you read; your marital status; ages of children living with you and how much you spend on your average phone bill. This is the sort of information used to determine which ads get to you and which would be a waste of your time and the advertiser's money.

But this is just the beginning of information collection. Your ISP is likely to track the amount of time you spend online, what sites you visit, how much time you spend there, what links you click on, etc. Some of this information is used by the ISP to improve services, and some may be passed along to advertisers.

Keep in mind that when we talk about advertisers getting information about you, that does not necessarily mean information about you personally.

"Users should understand that all the information advertisers get from NetZero is in aggregate," Says Woods. "They know that so many people with certain interests visit their site, but names are never attached."

Shissler is just as emphatic in discussing AltaVista's dedication to user privacy, pointing out that they, too, have one of the most stringent privacy policies on the Internet.

What this means is that advertisers may get information telling them that, of all the people who clicked on their link on a given day, 247 were female cat-owners in their 20s with college degrees and annual incomes of \$35,000 or more. But they have no idea who any of those 247 women are, nor do they have any information that will let them figure out whether you are among them.

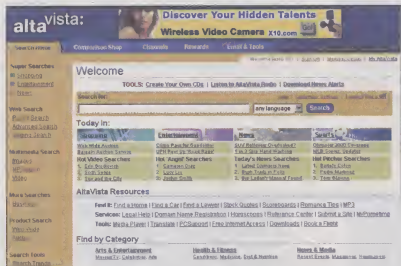
It's quite possible for an ISP to provide information that can, in theory, be traced back to you. Not necessarily just by name, address, or phone number but also by information that identifies individual computers. They can track the use of a specific computer online and,

Keep in mind that the fact that a policy is approved by an outside certification company such as TRUSTe does not mean that your information is being kept private. It means that the certification company has made reasonably sure that the ISP is being honest in telling you how your information is collected and used.

Although companies like AltaVista and NetZero take great pains to assure that your personal information isn't shared with third parties without your approval, remember that when you sign up for services provided by outside partners, you are giving permissions to share whatever information is required to perform that service. For example, Juno has a partnership with Snapfish, a service that allows you to get your film developed, receive free prints and a free online photo album. Obviously, this service is not possible unless

Snapfish also has some of your personal information.

Your ISP cannot be responsible for the privacy policies of those third parties. So make sure you see what partners might have access to your information and check out their privacy policies as well before you sign up for outside services.



The AltaVista home page is typical of those for free ISPs. You'll find the same types of services and features that are available from paid services.

tell the advertiser that a computer which is now browsing their web site is the same computer that visited the site of Chef Arno's Cookware Emporium Web site last Thursday before spending two hours at the site of RazzTazz Exotic Undies.

The details on how much information is collected, how it's used, and who gets to see it is spelled out in the ISP's Privacy Policy. It's a legally binding agreement between the ISP and the user, so be sure to read it before you sign up for any service. (NOTE: Some companies reserve the right to change their privacy policies, as Amazon.com recently did. If you are very concerned about the privacy of your information you may be better off avoiding any online services or companies that require you to provide it.)

Or perhaps you have no objection to your online habits being known as long as no name is attached to your information and you can remain reasonably private. Maybe that advertisement sitting at the top of your screen does not bother you either, or you're at least willing to rent out the space for a \$20 a month savings. In that case, a free ISP is a bargain.

"A lot of people are concerned about the idea that you get what you pay for," says Woods. But he points out that the free ISPs can deliver all the features and benefits people get from paid services. The only difference is that, thanks to the advertising, somebody else is paying.

In most areas that seems to be true. In the realm of customer service, though, there's

significant variation among providers. Alta Vista, Juno, and NetZero, for example, all have 24-hour telephone technical support available with response times in no way inferior to what we've seen with America Online or other national ISPs. AltaVista, however, was the only ISP that offered totally free personal support with a toll-free call. NetZero doesn't charge for the support but does require what will be a long-distance call for most users; a call in the 805 area code in the United States, or the 613 area code in Canada. Juno charges \$1.95 a minute for live telephone technical support for its free Internet service.

Not everybody needs live telephone technical support, of course. NetZero offers downloadable help files, an online support area answering common questions and support by e-mail. Should you need help and not have time to wait in the queue for standard telephone support, immediate help is available 24 hours a day for a fee of \$14.95. That's not to say that you should expect a long wait at the basic support number. As with all technical support services, the wait time can vary greatly, but when we called the wait was only about two to three minutes.

Juno offers online help areas as well as free support by e-mail, although it's primarily an automated service.

AltaVista, on top of online help files and support by e-mail, offers answers to the most common problems in recordings accessible through their telephone support service. Should you need to talk to a live tech support person, however, it's easy to choose that option.

While at first look it seems as though free ISPs can't afford to deliver the same level of customer service as their for-pay counterparts, there is a growing awareness within the industry that they cannot afford not to. The NetZero staff, for example, likes to draw an analogy to dating and marriage. When you're married, the thinking goes, you're committed to a relationship and more willing to work out problems. When you're only dating, it's much easier to call it quits and move along in search of someone else.

A contract with a paid ISP, they say, is like a marriage. You have a certain commitment to the business relationship, even if bound only by the monthly bill and the hassles that can be involved in closing an account. A free ISP is always a date. If you become dissatisfied with NetZero, it's easy to simply stop using it and start with AltaVista, or vice versa. So, like a date who wants to be sure you call back again, free ISPs have to devote resources to making certain you're enjoying the relationship, and

that means providing the same level of customer support you'd expect from their for-pay competitor.

One area where the free ISPs are performing excellently is in connectivity. The leading free ISPs have local phone access from almost everywhere in the United States. Shissler notes how AltaVista has connectivity resources rivaling that of AOL, while Woods is proud of NetZero's 98% call completion rate, about as good as you're likely to find in online services. In fact, the ease of connection to the free ISPs is one of the things most praised by reviewers.

■ Features. The free ISPs have certainly become far more than mere portals to the Internet. And while they're not in a position to develop great depth of content and features on their own, they don't need to.

"We have the ability to form partnerships with a wide variety of content providers and services," Woods explains. A look at the home page of any of the major free ISPs does show all the features you'd expect from a giant paid service—and perhaps some extras.

Some of the features have become so universal that they can pretty much be taken for granted, such as a free e-mail account and a Web site you can personalize. You can also expect any ISP, free or paid, to easily connect you to news, sports, weather and stock market information. Beyond those sorts of basics, features can vary. But with the scramble to remain competitive, it's likely that what works for one ISP will soon be appearing on others.

"I'd intuit that about 75% of what you'll see on any ISP is going to be the same," says Woods. About 20% will be differences in how they're presented. And maybe 5% will be specialized features to differentiate them."

AltaVista recently introduced its new AltaVista Messenger, which is its version of across-the-Internet instant communications software along the lines of ICQ and AOL Instant Messenger. The AltaVista version is compatible with Microsoft Messenger and PowWow, among others, allowing you

The image displays four overlapping windows from the Juno registration process. Each window has a 'Juno' logo and a 'Member Profile' link. The windows are titled as follows:

- Where do you use the Internet? (Select all that apply):** Includes radio buttons for 'Online', 'Offline', and 'Both', and a section for 'What do you use or plan to use the Internet for? (Check all that apply)' with checkboxes for various activities like downloading, shopping, etc.
- What is the highest level of formal education you've completed?** Includes radio buttons for 'Some high school', 'High school', 'Some college', 'College', and 'Post graduate degree'.
- What is your annual household income?** Includes radio buttons for income ranges from '\$0-\$10,000' to '\$100,000 or more'.
- Which of the following languages do you speak fluently?** Includes checkboxes for English, Spanish, French, German, Italian, Japanese, Korean, Chinese, Russian, and Other.

Each window also contains a 'Next' button and a 'Cancel' button.

These are several of the information windows you'll need to fill out to use Juno. Other services require similar information because you pay for your account in demographic data rather than money.

to chat one-on-one with any of your friends online, no matter what ISP they're logged on to, as long as they're running compatible software.

AltaVista Messenger includes capability for voice chat so that you can talk to a friend as you'd talk over the telephone, as long as you both have a microphone and speakers attached to your system. It also allows you to create your own personalized chat areas so that several people can gather together in one electronic "room," even when all logged on through different services.

One stand-out service from NetZero is the new NetZero Message Center, powered by ThinkLink. As it stands right now, it gives you free voice mail. You receive an assigned phone number which people can call to leave you messages. You can retrieve your messages by phone or through your NetZero inbox. Others can also call into your box with their computers, typing in messages that are read back to you with a computer-generated voice.

As if that's not enough, the service is expanding to make it a full-scale message

center. You can set it up to forward your messages to wherever you are. It makes it possible for you to get your messages by regular telephone line, cellular phone, beeper, or even fax machine.

At Juno, the upcoming release of the software will include the ability to automatically check e-mail on other accounts whenever you download your Juno e-mail. Other mail tools include greater ability to sort and control your incoming and outgoing mail so that you can sort and file them as you wish and automatically delete unwanted junk e-mail. There's even a tool to let you make backup copies of your e-mail folders, messages,

primarily newcomers to computing who saw the price of ISPs as a barrier to getting online."

Now, more new users are coming from paid services. Woods adds that he is seeing the same change in the user base that is turning up all across the Internet, with more older users and more women.

Whoever the users are, there are a lot of them. AltaVista and BlueLight both announced their 3 millionth registered user in July 2000. Both free ISPs were only months old at the time. It took AOL several years to hit the 3 million mark. NetZero, launched in 1998, hit 3 million in January 2000. One thing that remains unknown is how many of these

people use the free ISPs as their primary connection and how many use it as a backup for their paid provider.

Furthermore, with hard drive space so cheap, it's now practical to download the software from multiple free ISPs and have several backup services at your disposal.

Even if you don't want to live with the flashing ads all the time, if you're going to use the service only when you can't get through to your primary provider, having a free service makes a very reasonable alternative to paying a monthly fee to an ISP that you won't use for weeks at a time. **15**

by Steve Glaser and
Elizabeth Lewis

NETZERO My Z Start Support Downloads

FREE INTERNET ACCESS AND FREE E-MAIL FOREVER.

Sign Up Now!

USA CANADA

If you are paying... YOU DON'T HAVE TO!

STOP PAYING... AOL MSN Earthlink AT&T Worldnet Compuserve

Access Numbers Fast Drive NetZero Order A CD

a monthly fee to

From the NetZero home page, you can download a version of the free software for use in either the United States or Canada.

Where To Find A Free ISP

AltaVista

<http://www.zdnet.com/downloads/altavista>

BlueLight

<http://www.bluelight.com/freeinternet/index.jhtml>

Fast Lane (Earthlink)

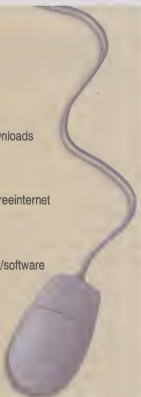
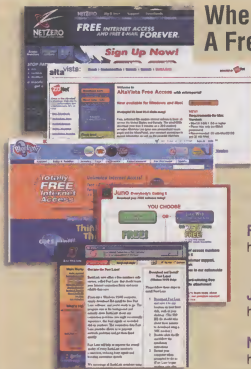
<http://www.earthlink.net/internet/software/fastlane>

Juno

<http://dl.www.juno.com/get/web>

NetZero

<http://netzero.com>



Affinity ISPs

Internet Services That Cater To Your Interests



The more than 7,000 ISPs (Internet service providers) in the United States offer a range of technology products and services that can boggle the mind. They cater to the American share of the more than 115 million adults worldwide who have access to the Internet. Industry experts expect the number of adults online worldwide to almost double during the next four years; that means approximately 100 million more people around the world will get online. In order to meet the growing demand, expect ISPs to continue popping up with more and better services. For end users, the extensive number of ISPs to choose from means you need to do your homework when it comes to pinpointing exactly what kind of service you want.

■ **What Are They?** Before you sign up with just any Internet provider, consider this: The growing demand for services has driven competition within the industry to an all-time high. The latest trend in ISP marketing is big hardware owners farming out blocks of

Internet connections to groups that can sell at least 1,000 subscriptions. Translated, this means that powerful companies such as AT&T, GTE, and PSINet, the owners of the actual wiring to homes and businesses, have decided to offer wholesale connections to groups that can go out and secure the clients. Businesses or organizations can buy Internet connections for one price per subscriber, then resell them for a few dollars more.

For businesses, entrepreneurs, and other organizations, a completely new concept in using the Internet to form online, electronic communities has opened up. Any group that can muster enough subscribers can form an alliance with one of the muscle companies to offer members a full range of Internet services including high-speed access and membership in a select community. An organization such as the Girl Scouts can recruit members for a new ISP that they can call Girlscouts.net. It would be able to offer its members unlimited connections and all the amenities offered by generic ISPs. These "new" providers are

known as affinity ISPs because they offer members a chance to become part of a singly-focused, special-interest online community.

For end users who thought that surfing the Internet would be the ultimate exercise in anonymity, affinity ISPs offer just the opposite. They provide the perfect meeting ground for customers and services while wrapping it in the security of an exclusive online community. Once identified as having certain interests, users are then eligible to receive targeted information and promotions that apply specifically to the affinity groups they join. Businesses that want to use the Internet to reach potential customers can maximize their efforts by focusing on select communities. The affinity ISP decides who is in and who is not, thereby shielding members from Internet spam, bogus offers, and annoying ads.

For many groups, becoming an affinity ISP sounds like a great idea, but dealing with the technical aspects of launching a full-fledged ISP keeps many groups from entering the industry. Again, changes in the marketplace have led to good news for end users.

A new kind of middleman now handles complex technology, conducts market research, and makes it possible for businesses and groups to harness the power of the Internet as part of their marketing strategy. eCommunity and H2O networks are just two of the middlemen that offer affinity hopefuls a range of services that include all the necessary planning, design, and operations expertise needed to build and maintain electronic community networks. They make sure that the community and business participants are carefully matched and managed and that participants receive services that are beneficial to everyone.

UltraStar, a privately held Internet entertainment company also builds and manages exclusive, subscription-based online communities. Its primary focus is on major entertainment and sports groups.

■ **Find An Affinity ISP.** A search on the Internet for affinity ISPs will reveal few sources to try. However, look at a recent mailing from your favorite company, a newsletter from a special interest group you subscribe to, or the box of a favorite product you recently purchased. Not long ago, some General Mills cereals, including Chex, came with a free CD-ROM containing the PC game Who Wants to Be a Millionaire and some other goodies. The

CD-ROM also included an option to sign up for Lightdog, a new Internet service with all the trappings of an affinity ISP.

Another way to find affinity ISPs is to visit the Web site of your favorite team or artist. You may have to poke around, but you could find a link or banner that says "join our online community," "get a free e-mail account at...", "members login here," "join now," or a similar message. Sometimes you have to hunt a little, and sometimes the message is clear.

If you're affiliated with a particular interest group, you can visit its Web site or call it to see if it offers Internet service. The National Wildlife Federation, a nationwide conservation group that protects nature and wildlife, recently entered the affinity ISP market. It hopes to "be the Internet" for its members. The organization intends to create a thriving online community while maintaining a virtual one-on-one relationship with members. It offers a special NWF browser, unlimited access, and a full range of goodies including your own e-mail @nwfnetwork.com, Web space and more.

■ Reasons To Switch To An Affinity ISP.

If you already have an ISP, then you probably need a really good reason to switch. If you're new to the market, you should give affinity ISPs a fair share of scrutiny. Here are a few reasons that might convince you:

Identity. Most affinity ISPs are not free, and they do not intend to compete with the freebies. What they do offer you is an online identity, an electronic image, or your own "e-identity." Tell the world who you are and what you like, and share in the benefits offered by affinity ISPs.

E-mail. When you belong to an online community, you can tell your friends and family to e-mail you at *yourname@yankes.com*, or *yourname@nwfnetwork.com*, etc. According to P.R. Nichols, president of eCommunity, a favorite aspect of becoming a member of sausalito.net is SAUSMAIL, a remote e-mail service that's a lot like "hotmail" but without the spam. According to Nichols, "it's free and most people use it as their existing e-mail address. They like this feature because if they ever change their ISP, they don't have to change their e-mail address."

Targeted marketing. Vanity aside, another reason to join an affinity ISP is that you're exposed to carefully controlled advertising and services tailored to your interests. You also get information you want rather than all the information there is. For example, kingdomonline.net, an Internet community of Christians, provides an online Bible, bookstore, prayer request board, news, games, and links to Christian businesses and Web sites.

Incentives. Affinities want you to switch, so many of them offer enticements that can fatten

your wallet, such as rebates, discounts, and subsidies. According to a consumer survey conducted by Jupiter Communications this spring, more than 47% of present ISP customers would switch if offered an economic incentive. It may take awhile, but if you do your homework, you could end up with better service, and some nice rewards.

Technology. Affinity ISPs offer a lot in the way of technology to their customers, including high-speed connections, lots of connection choices (blackpower.net), filtered Internet surfing (family-network.net), online interactive databases, 3-D chat rooms, superior audio and video (davidbowie.com), and virtual-reality style participation. Many focus on making your online experience everything you hope it will be plus a lot more, all within the scope of your personal interests.

■ **Try Before You Buy.** If you want to try an affinity-style service without switching providers first, you might like the approach offered by ISPs built by UltraStar. Affinities including davidbowie.com, clevelandbrowns.com, hanson.net, and yankes.com, let you try an exclusive content membership while sticking with your old ISP. According to Bob Goodale, president and chief strategy officer of UltraStar, "Interestingly, the better response has been with the pure subscription approach; we've had more people pick that than change their ISPs to get the exclusive content." However, Goodale thinks that may change as more people get connected.

■ What's Available Right Now.

If you join an affinity ISP now, what can you expect? We took a closer look at one affinity ISP, yankesXtreme.com, to size it up. Members of yankesXtreme.com enjoy a customized, easy to use interface with some really great graphics. Once logged in, a member can start off at Yankee Stadium's pitcher's mound, take a 360-degree look around, then walk over to a ramp, get in an elevator, and go up to the chat room deck. There, he or she can walk around and choose a door such as Technology to walk through. Once inside, the member joins other people standing around having a chat. In the stadium, members can stroll around and enter a variety of

Structure Of An Affinity ISP

Tier	Companies	Services
Hardware Wholesalers	AT&T, GTE, PSINet, etc.	Make national dial-up service available in every speed and variety. Able to set up large blocks of subscribers. No longer want to be the primary provider, prefer to leave the membership headaches up to someone else.
Network Management	UltraStar, H2O networks, eCommunity, etc.	Form a partnership with the wholesalers. Build online communities for interested groups. Handle the technology for groups. Integrate products, services, and members.
Businesses & Special Interest Groups	National Wildlife Foundation, the Cleveland Browns, Independent Insurance Agents, etc	Hire a network management company to do the research and work the technology. Offer the service to their members.
Group members, employees, end users	You	Have an affiliation with a business or group. Purchase internet connection service from them. Keep the community alive through participation and loyalty.

stores and clubs, much like a video game. Certainly, this is not just your basic ISP—not bad for \$14.95 per month.

However, not everyone chooses an ISP for fancy stuff. In households where Internet users include children, filtered Internet access holds a higher priority than virtual chats. Several family-oriented online communities employ

the latest technology to provide a safe, friendly Internet experience for their members. Families who join communities such as homeschoolfamilies.net, lightdog.com, and family-network.net enjoy services that include kid stuff, educational links and information, chat rooms and message boards, games for kids, parental advice, and much more.

What's the most important element of an affinity ISP? According to Goodale, "By far, the exclusive communication, both between the 'brand' and the fans or among the fans themselves. That means far more than having a deep, fancy Web site." **IS**

by Anne Sheerlin

Affinity ISPs To Join

The affinity ISPs arranged alphabetically below offer unlimited Internet access in addition to the services listed. For more details, visit the individual Web sites.

blackpower.net

The service offers a wide range of connection plans. It includes shopping and chat room. Minority owned and operated; coverage includes continental United States, Canada, and Japan. **Fees:** \$17.95 to \$36.90 per month. **Slogan:** "Giving you the power of choice, and the tools to reach your goals."

catholicfamilies.net

Includes free e-mail, free software, personal Web space; Internet filter to protect kids from pornography; membership benefits and discounts. **Fees:** \$14.95 per month.

clevelandbrowns.com

Includes e-mail, access to preferred tickets, weekly journals, enhanced chat, contests, videos, audio files, and editorial features. Exclusive, subscription-based online community for fans of the NFL Cleveland Browns. **Fees:** \$14.95 per month.

davidbowie.com

Includes free e-mail; Web space; chat rooms; message boards; personal database; member posted music, art, and writings; exclusive music content; music news; Bowie content

updated daily; music library; backstage footage; fan sites; chats with Bowie and guests; 3-D chat; point system for online time; and a custom browser. **Fees:** \$14.95 per month.

etown2000.com

V90 or ISDN. Free e-mail, personal home page, communities, chat rooms, games, fax, and news. Communities generated from customer requests; each community has its own message board and chat room. **Fees:** \$15.95 to \$31.95 per month. **Slogan:** Nice folks! Good fun!

family-network.net

Free e-mail and personal Web site. Commercial plans available. Features state-of-the-art content management to protect families and businesses from objectionable content. **Fees:** \$12.95 per month; \$5 setup fee. **Slogan:** Where Families Have Fun, Fun, Fun.

gopnet.com

Free e-mail only. However, this affinity ISP is presently under development. Official Web site of the national Republican Party. **Fees:** Free.

hanson.net

Includes e-mail, Web space, content and exclusive access, preferred ticket service, instant messaging, message boards, chat rooms, the hanson skins browser software, 3-D chat, bonus points, members-only

info, and lots of audio/video stuff. **Fees:** \$14.95 per month.

homeschoolfamilies.net

Includes generous free e-mail and Web space, family filtering, and Web portal. Web hosting services also available. **Fees:** \$17.95 to \$19.95 per month.

kingdomonline.net

Free e-mail, chat rooms, search engine, online Bible, bookstore, prayer request board, news, games, and Christian businesses and Web sites. Features filtered Internet access for families. **Fees:** \$17.95 to 19.95 per month; \$10 setup fee. **Slogan:** Surfing That's Safe For Your Family!

lightdog.com

Includes free e-mail, filtered access, Web space, online shopping, news, information, software, and screen savers. **Fees:** \$21.95 per month.

nwnetwork.com

Free e-mail, the official National Wildlife Federation (NWF) Internet browser software, news, weather, community pages, shopping, and discussions. **Fees:** \$15.95 per month; the NWF receives 10% of your subscription fee.

ourhouse.net

Free access, free e-mail account, news, search, message boards, and sweepstakes. For homeowners who love working on their castles, there are lots of do-it-yourself tips, repair projects, shopping for the home,

gift ideas, and contractor services. **Fees:** Free. **Slogan:** Everything your house desires

ravenszone.net

Includes free e-mail, special promotions, chat and bulletin boards, team info, insider coverage, videos, games, priority ticket sales, trivia and prizes. Exclusive, subscription-based online community for NFL Baltimore Ravens fans. **Fees:** \$14.95 per month.

sausalito.net


Free e-mail, Web space, software, 32,000 newsgroups, and 2,000 newspapers. Commercial and subscription services available. An extremely robust community site that features a unique art gallery, historical content, events, and commerce. Includes an easy-access directory. **Fees:** \$21.95 per month; \$18.50 setup fee. **Slogan:** A Pacific Paradise

superioraccess.com

Superior Access is an affinity ISP providing services and support specifically to assist Independent Insurance Agents. You must be an agent to access information about this service.

yankeesxtreme.com

Includes e-mail, game coverage, clubhouse, community pages, knowledge pages, interactive content, ticket window (view your seats in the virtual stadium), 3-D chat, personal web page, shopping, and rewards. **Fees:** \$14.95 per month.



**If I could record any
show forever I would
record the classics
like *Gunsmoke*,
Columbo,
and *Felicity*.**

* You won't believe what you can do with ReplayTV. It's not a VCR—it's a digital video recorder, so you can actually pause live television and do your own live instant replays. It also has a search engine, so you can punch in a keyword, say, "Golf," and it will find and record any golf program that comes on—all without videotape. Or just punch in the name of your favorite show, and ReplayTV will find it and store every episode so you'll never miss them again. All this and a free lifetime subscription are why ReplayTV is the critics' choice.^{*} Call us at 877-replaytv or visit www.replaytv.com.



replaytv some televisions have all the fun.

Available at Best Buy, Circuit City and Amazon.com

^{*}Based on head-to-head reviews in *Satellite Business News*, 2/19/00; *Philadelphia Daily News*, 6/18/00, and the *LA Times*, 5/4/00.

Become Anonymous

Don't Let Others Track Your Web Surfing Habits & E-mail Use

There was a cartoon going around a few years ago of a dog typing away at a computer, with the caption: "On the Internet, no one knows you're a dog." This might have been true then, but the unfortunate truth is that now they not only know you're a dog, but they know your breed, favorite dog food, brand of dog collar, as well as the fact that you just came from the site <http://www.cutepoodle.com>.

The amount of information you can give away when surfing the Internet or sending e-mail is staggering, and the simple fact is that you just never know who is going to be collecting such information, how long it will be stored, or how it will be used in the future (sold to advertisers and marketing firms, or worse). In just the past few months, high-profile privacy issues such as the following have made the news:

CueCat. The original idea was to send out this barcode scanner for free to hundreds of thousands of consumers, who could then use it to scan barcodes and easily browse to company or product Web sites. A great idea... until it was revealed that CueCat also came equipped with a tracking feature to monitor and report your usage.

Carnivore. This FBI e-mail surveillance system is capable of sifting through a massive amount of e-mail to find specific messages, a little akin to tapping every phone in New York City to get evidence on one suspect.

Toys. What is it with toy companies? A suit filed in September against Toys "R" Us claims that they track online user activity and share data with third parties, while the Federal Trade Commission (FTC) recently quashed a plan by Toysmart.com to sell its customer database, especially since Toysmart.com claimed while gathering the information that it never would.



Drug czar. The use of cookies was banned on all federal Web sites after it was found that Gen. Barry McCaffrey, the drug czar, and his Office of National Drug Control Policy were using them to track people who were accessing online drug information.

The list, unfortunately, goes on, and with very little regulatory overview, it's safe to assume the worst when it comes to Internet privacy, and plan accordingly. Two great ways to minimize your risk are to try and make your Web surfing habits and e-mail use as anonymous as possible.

■ Break Free From Web Tracking.

Every time you go to look at a Web page, you could be giving a considerable amount of information to that site, including: your browser type and operating system; what plug-ins you have installed; whether Java, JavaScript, or VBScript are enabled on your system; your processor type, monitor resolution, and size; and your IP (Internet Protocol) address. Plus, sites can also track how many other sites you've accessed in the current browsing session, the last page you visited, and more. Luckily, a variety of both software

and Web-based solutions now exist that can dramatically reduce the amount of information you give away.

Freedom. Zero-Knowledge Systems' Freedom software (<http://www.freedom.net>) is rather unique among the majority of solutions offered here in that it lets you not only surf the Internet anonymously, but also send and receive e-mail and use telnet, chat, and newsgroups. Freedom makes use of pseudonyms (or "nyms," as they call them) that you can set up. With each nym, you decide how much you wish to disclose.

This concept not only lets you control how much information you give away, but also lets you separate your online interests through the use of several nyms, a perfect solution for those

with split virtual personalities.

Freedom works through the Freedom Network, a series of "privacy-enhanced detours" that sit between you and the Internet. Every time you send or receive a request, it is wrapped in several layers of encryption, and each bounce through the network strips of a layer, creating a powerful cloaking system that shields you from prying eyes (including, according to the company, Zero-Knowledge itself). All of this is controlled through a small panel that sits on your Desktop and shows your current nym, the type of information you're sending, and more.

Special features include the ability to store cookies for each nym in its own special cookie jar (where you can view and delete them), use digital signatures that keep people from impersonating you, and much more. Freedom 1.1 is available for \$49.95, which will give you five nyms for one year, at which time, you'll have to resubscribe (as in, pay more money) to keep using the system.

Anonymity 4 Proxy. As the name implies, Anonymity 4 Proxy (<http://www.inetprivacy.com/a4proxy>) makes use of proxy servers (with IP addresses that you can use to hide your identity while surfing) to give you more anonymity on the Internet. This software comes with a database stuffed with hundreds of public anonymous proxy

servers located around the world. These proxy servers not only let you access Web pages through them (using a proxy in Denmark, for example, will make it appear that you are logging into a site from Denmark), but they also claim to be anonymous, meaning that no part of your address transmits to the Web site from the proxy.

Using a proxy server is often a leap of faith. Is it up? Is it fast enough to use? Is it really anonymous? With Anonymizer 4 Proxy, however, you can run a series of tests on a proxy server to determine its response time, speed, and most importantly, whether it really does hide your identity. You can select one proxy from the database to use full-time, or set up the software so that a different proxy is called upon with each request.

Anonymizer 4 Proxy works with Web browsers and download managers such as GetRight, and while it has no ability to cloak you for use with chat, newsreaders, or e-mail, you can use it with Web-based systems like Hotmail as an anonymous e-mail solution. The software comes with a number of powerful features, including the ability to generate unique IP addresses, block cookies, and use it over a LAN (local-area network) so that each computer can have an anonymous Internet connection all to itself.

Anonymizer 4 Proxy 2.5 is \$35 for non-commercial/home use, and supports up to three computers. You also get free software and proxy database updates for life.

Anonymizer.com. Anonymizer.com (<http://www.anonymizer.com>) has definitely become the high-profile king of low-profile Web surfing. Around since 1996, Anonymizer.com provides a variety of solutions, from free surfing to dial-up access, that put anonymity before all else by masking your identity, disabling cookies, addressing Java and JavaScript, and more.

To find out what's really at stake, initially click-through to its Privacy Analysis, where it "reads" your connection and lets you know exactly what you're giving away (the list that started this section was compiled using its Analysis). It's a pretty sobering experience, and a very effective advertising tool for one of Anonymizer.com's services:

- **Free Surfing.** With the Anonymizer.com Free Surfing service, anyone can surf the Web anonymously by plugging an address into the Anonymizer.com site and pressing the Go! button. Links subsequently clicked

will continue to be anonymous, and you can easily tell if you're surfing incognito by the presence of a sizeable banner and strip at the top of the page. A delay is built into the free version (pages take longer to load), and you're limited to a 10MB (megabytes) file size for downloads. It also doesn't allow streaming video. In addition, you'll miss out on a lot of the cooler features that are incorporated into the for-pay versions.

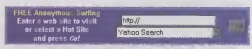
- **Premium Surfing.** For about \$5 per month, you can surf the Internet in anonymous style. Gone are the built-in delays and bulky banners of the free service. There are

Anonymizer.com

Privacy is your right.

Why protect your privacy?

Every time you use the Internet you leave a trail of information about yourself. Don't believe us? Check out <http://www.anonymizer.com>. The sites you visit, online advertisers, your ISP, and other people who use your computer may know a lot more. Here's why you should use our privacy service in a [bulletproof](#) detail.



Anonymizer.com lets you surf the Web anonymously by browsing directly from its site.

no restrictions on downloads with this version, and you get full access to all future features, as well as current features such as Safe Cookies and URL Encryption. Safe Cookies repackages any cookies that you get, so you can make use of their good features without worrying that a site is tracking your browsing habits over an extended period of time. With URL Encryption, you can keep your ISP from logging the Web sites you visit.

- **Secure Tunneling.** Secure tunneling offers all the advantages of premium surfing, as well as providing a shell for secure mail and news access. It offers a completely encrypted connection that prevents anyone from coming in between you and Anonymizer.com (such as your ISP) to collect information. You also get a free e-mail address and the use of Anonymizer Publishing (with 2MB of Web publishing space), all for \$10 per month.
- **Dialup.** You do everything Internet-related through your ISP, so it's no wonder that the ability to log your activities here can seriously undermine your attempts at

anonymity. Anonymizer.com can help. For \$20 per month, you can get all of Anonymizer.com's services, as well as an anonymous, private access point. The service is currently available in the United States, Canada, and Japan.

the-Cloak. As a completely free Internet-based tool that sits between your computer and any Web site you visit, the-Cloak (<http://www.the-cloak.com>) shields you from spying eyes. Using standard SSL (Secure Sockets Layer) encryption, it can encrypt all communication from your browser, or you can opt for non-encrypted surfing when you log into their system. A

Desktop-based control panel lets you know if you're getting ready to wander onto a non-cloaked page, so you always know when it's running.

In addition, the-Cloak gives you the option of completely turning off cookies or placing them remotely on the-Cloak's Web site (so they can be used during the session and then purged). Citing a need to regulate misuse, the-Cloak does keep its log files for several days before completely destroying them, and it may limit the number of simultaneous users and megabytes per session if usage gets heavy.

In order to use the-Cloak, you'll need to turn on JavaScript in your browser (it's necessary for the control panel to run), although you will maintain full control over what scripts run on your system (those that come from the Web sites themselves). You should also enable cookies (so the-Cloak can give you a login cookie) and turn on the browser prompt that warns you if you are leaving a secure site. Netscape Navigator users should also turn off the What's Related feature.

SpacePROXY. SpacePROXY (<http://www.spaceproxy.com>) offers another free proxy service. One of the features that is particularly helpful details how you can go about setting up various browsers so they can access the service directly (without constantly having to go to the service to do so).

Finally, if you'd like to do a little do-it-yourself proxy surfing, check out Proxys 4 All (<http://proxys4all.cgi.net>), which maintains a list of anonymous proxy servers.

- **Conceal Identification On E-mail.** One place where you could be giving away a lot more information than you want is in the area of e-mail. Although many may see anonymous

e-mail as belonging in the realm of hackers and spammers, there are a great many reasons why you might want to shield your identity when sending messages or using e-mail to post to newsgroups. Expressing political, religious, or personal views that run counter to your place of employment or community could have real life consequences in terms of being fired or harassed. Internet savvy employers could do a newsgroup search on you and pass you over for hiring if your views didn't fit into their narrow philosophy. Or, if you're placing personal ads, you may want to disguise your true identity for a variety of safety reasons.

The simple truth is that anything you e-mail or post to newsgroups can last a very, very long time, and its conceivable that something you say today could come back to haunt you in 10 years, or could land you in a spammer's database tomorrow. Adding some degree of anonymity when e-mailing messages can help in both instances.

One of the simplest ways to add a layer of anonymity is to sign up for one of the free, Web-based e-mail services like Hotmail or Yahoo! Mail using false information. Disposable accounts such as these are handy because, if one starts to clog with spam, you can just dump it and get another. You can add another level of anonymity by only accessing such services through a proxy server or with a program such as Anonymity 4 Proxy installed on your system. This way, if any information is sent with the message (such as the IP address you're using to log into the service), it will be the proxy address that is sent.

Another tool you can use for both anonymous e-mail and newsgroup posting is the remailer. Remailers let you mail a message to a given address, which will then repackage it, strip out your address, and forward it onto another address you specify. The Anonymous Remailer Information list (<http://anon.efga.org/Remailers>) contains a large number of remailers and is updated frequently so you'll always have access to the "freshest" remailers. Information such as usage, how long it takes remailers to deliver messages, and the features each provides appear on the list, so you can easily select a remailer that is both reliable and meets your particular needs.

Remailers can follow many different formats depending on their type or how they are set up, but the following is a brief example of how an e-mail message might be set up to work through a remailer. First, select a remailer from the Anonymous Remailer Information list and place its address in the e-mail To field. Some remailers allow subjects, others strip them out, and some require that

message to. Alternately, you could type Anon-Post-To: *any.newsgroup* for posting to newsgroups, and again, the "any.newsgroup" would be replaced by the newsgroup you're trying to reach.

****Line 3:** Leave blank.

****Line 4:** Type two pound symbols, like this: ##

Everything after this line will be forwarded.

****Line 5:** Type Subject: Place *subject here*, replacing "Place subject here" with whatever topic you want.

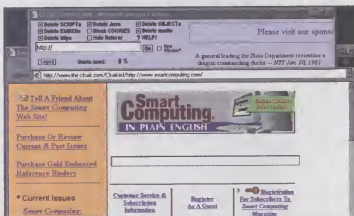
After this, you can start your message. When the remailer receives the message, it will reformat it and anonymously send it to the desired address. Before you actually send out a real message using this system, however, always test it to make sure the remailer is working, will

work with the above format (or a different format; many will send you formatting information if it can't work with your e-mail), and that it does send the message through anonymously. Unfortunately, some remailers will still include your address somewhere in the message or header.

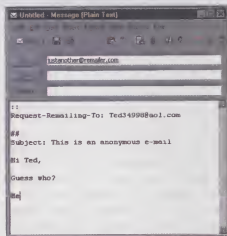
More information about remailers and what you can do with them is available from the About Email page (<http://email.about.com/Internet/email/cs/remailers/index.htm>). Or, if you're looking for a much simpler remailer solution, MailAnon (<http://www.mailanon.com>) offers an online solution for sending and receiving anonymous mail for \$5 per month (try it free for the first week).

Information is the coin of the realm in the information age, and this year has seen some pretty flagrant privacy violations in an attempt to collect and capitalize on personal data. Expect more of this as governments fumble with how to best protect privacy in a medium that stretches across borders and cultures. In the meantime, with each layer of anonymity you add, your privacy gains an added layer of protection, and a little anonymity goes a long way on today's wide-open Internet. [E]

by Rich Gray



With the-Clock's control panel, you can easily change and keep track of what information is going out and coming in.



This is an example of what an e-mail message formatted for a remailer will look like.

you include it in the body of the message. We'll go with the latter for this example, and leave the subject field blank. In the body of the message, the first five lines will essentially be instructions for what the remailer should do with the message, and are structured like this:

****Line 1:** Type two colons, like this: ::

****Line 2:** Type Request-Remailing-To: *person@address.com*, where the address is the person you're sending the anonymous

Cruise The Internet

Web-Ready Vehicles Travel The Information Highway



The PC, it seems, has become ubiquitous. It's on your desk at home and at work; you can take it on the road with your notebook; hold it in your hands with your Palm VII; and even integrate it into your cellular phone. So, it should come as no surprise that carmakers also want to bring the PC—complete with World Wide Web and e-mail access—into your car. It is a place, after all, where many people spend a large portion of their lives, commuting to and from work, shuttling children to activities, completing errands, etc.

The challenge becomes how to integrate this world into a car, with all the noise and distractions that already exist, without risking safety. Although the car-based computer will provide Web access, in most cases, it won't require you to look at a screen to get information. By taking advantage of advances in voice recognition technology, it will actually allow you to speak to your computer.

The Emerging Industry. Recent implementations of this idea provided safety and security features such as roadside assistance,

remote unlocking (should you lose your keys or lock them in the car), remote diagnostics (diagnosing car trouble), emergency services, and navigation assistance (helping you get where you want to go). As we move forward, however, there are plans to integrate your digital world into your automobile. Just as the line between your cell phone, Palm VII, notebook, and desktop has blurred; so will the implementation of this technology in the car. In fact, car companies hope to get into the business of selling you cellular services as a way to make money in the face of a changing car market.

The emerging wireless computing car industry even has its own name: telematics. Jupiter Communications (<http://www.jup.com>) reports in its Sept. 20, 2000 "In-Vehicle Access" report that it expects 10 million telematics systems to be deployed in the United States by the end of 2003. GM's OnStar system (discussed in detail later) currently has around 400,000 subscribers. Other car companies offer similar services on luxury cars such as Mercedes and Lincolns, with much smaller user bases. This means that

there is going to be an explosion of these systems in your cars.

According to Nick Richards, communications specialist at OnStar (<http://www.onstar.com>), General Motors plans to offer its OnStar system in 32 of 54 models in the 2001 vehicle year. This will increase the installed base dramatically, with a projected base of 4 million users by the end of 2003.

In August of this year, Ford announced that it was forming a new company with QUALCOMM called Wingcast (<http://www.wingcastmobility.com>), whose purpose is to provide telematics services (including voice, entertainment, Internet access, and safety services) in Ford's entire family of cars and trucks. According to its press release, Ford expects more than 1 million cars to be equipped with this service by the end of 2002 and 3 million by the end of 2003 (with the service available in *all* the models in the Ford family by the end of 2004).

In addition, Clarion is offering an after-market unit called the AutoPC (<http://www.autopc.com>), which provides similar services for anyone who wants this type of technology without being tied to a particular car company. This article covers these current systems, the proposed Wingcast system, and the current state of the budding telematics industry.

General Motors OnStar. General Motors was one of the early adopters of the telematics initiative, offering a full-featured cell phone in Cadillacs as early as 1997. Users could access services by pressing buttons on the cellular phone keypad.

Beginning in 1999, General Motors began offering similar services in a three-button console built into the dash of the vehicle. The location of this console varies by make, but includes an overhead location similar to moon roof controls, an integrated-into-the-dash model that resembles climate controls, or a model that's built into the bottom of the rearview mirror. All methods provide quick access to OnStar services, without taking the driver's attention from the road. Regardless of the implementation, the system consists of three buttons.

Blue OnStar button. Press the blue OnStar button to get in touch with a live advisor at the OnStar Center. These advisors are available 24 hours a day, seven days a week (including holidays), and can provide remote diagnostic services (to figure out what's wrong

with your car), send roadside assistance, or provide directions to get you exactly where you want to go. Using GPS (Global Positioning System) technology, the OnStar staff can locate the car and give you step-by-step instructions on how to get to your destination. They can even make restaurant and hotel reservations for you. Plus, if you lock your keys in the car or lose the keys, you can call the OnStar Center, provide a PIN (personal identification number), and its staff will transmit a code to the car's computer to unlock your door.

Red emergency button. Press the red button and the system automatically notifies an OnStar Center advisor that you're having an emergency. According to Richards, a signal appears on the advisor's screen, alerting the advisor who then attempts to communicate with you to determine the nature of the problem and send appropriate emergency services such as the police or an ambulance.

White virtual advisor button. The white button will provide access to an all-new set of services beginning in 2001. Subscribers will be able to access cellular telephone services as well as Web and e-mail services. You can access all these options using voice recognition technology, meaning that you use voice commands so your hands never have to leave the steering wheel (except to push the button) and your attention never has to waiver from the road. You can customize your service by going to the OnStar Web site and selecting the services you want, such as personalized headlines, stock quotes, sports scores, etc. You can even get stock quotes that aren't on your personal list simply by requesting them using a voice command.

Let's suppose that you set up your news on the OnStar Web site, and you want to retrieve it now. Begin by pressing the white button and say "virtual advisor." Next, recite your 4-digit PIN and the system responds by saying, "welcome to OnStar." Speak the command, "get my news" to trigger the system to begin reading the headlines. It continually asks if you want to hear more or move on to the next headline. You can stop the system at any time by saying, "stop," or you can move on to a different service by speaking another command such as "get weather." You must give these commands using the exact words or they will not work. GM will provide more information about this, with a list of common commands for you to learn.

If you want to get e-mail in the car, you can choose to forward your e-mail from your

e-mail provider to the OnStar server. When you do this, Richards says, the original e-mail remains on your server, but the system can read your e-mail while you drive. The technology, Richards says, does not allow for responding, so you'll have to either call "e-mail senders" back or wait until you return to the office to respond.

In addition, GM is offering cellular phone service in the car. The service will include a phone and a selection of calling packages, which GM is reselling from Verizon Wireless. Like the Web and e-mail services, you can access the phone using voice commands, so your attention never has to waiver from the road. You can program addresses and phone numbers, or you can use a voice command to provide the entire phone number. To place a call, push the white button, and then say "dial [area code and phone number]," or if you pre-program a number, you can say "dial home" or "dial office."

Richards says that the prices for these service will vary, depending on the level of service subscribers choose, but the basic Safety & Service package costs \$199 per year. Premium Services such as concierge services (making reservations, ordering flowers, etc.) and routing support will cost \$399 per year. Pricing for cell phone services, as well as the virtual advisor Web and e-mail services, is not yet available.

■ Ford's Telematics Vision. Ford has been in the telematics industry for a long time (it began offering the RESCU service in Lincoln Continentals as early as 1995), and it formed a company called Wingcast with QUALCOMM earlier this year to create a telematics service from the ground up. Wingcast will work with Ford, but it will still be an independent company with the hopes of eventually selling subscriber services to other companies and individuals.

The GM OnStar system consists of a control panel with three options: press the white button to access the Web, e-mail, and cellular phone services; press the blue button to contact a live advisor at the OnStar Center for diagnostic and navigational services; and press the red button in an emergency situation to signal an OnStar advisor for help.



The partnership's vision includes services that, according to Joanne Coleman, vice president of marketing for Wingcast, will be "beneficial to the driver and the passenger." This could even include LCDs (liquid-crystal displays) in the back seat for personalized entertainment. She stresses that there are many possibilities, but that none are certain yet as the company is still in the midst of developing the platform for the new system.

Ultimately, it should be a system that will integrate well with other computer systems you are using, including your cell phone, PDA (personal digital assistant), and computer. Whatever form it takes, it will include services such as safety and security (for roadside assistance and emergency services, for example).

As with OnStar, you will be able to interact with the system using voice recognition technology, and you will be able to customize your system at the Wingcast Web site. Coleman says Wingcast envisions integrating the system with what she calls "mobile commerce." With such a system, if you were running low on fuel, the system could inform you that your favorite gas station is two exits up the road. Coleman says that the consumer will control this by entering a list of favorites on the Wingcast site, so they are presented with a specific list of possibilities, rather than being "bombed with a universe of possibilities."

The Wingcast system will take advantage of QUALCOMM's CDMA (Code-Division Multiple Access) technology and sell wireless services to consumers. Although it's too early to say exactly what will happen with any certainty, Wingcast expects to offer basic safety and security services for around \$10 a month. Additional services could increase that monthly expense to around \$30.

■ **The Clarion AutoPC.** For those of you who don't plan on purchasing a Ford or GM (or one of its subsidiaries) car, there is another alternative: the Clarion AutoPC. With this system, you purchase the device in much the same fashion you would purchase a CD Player or GPS system and have a dealer install it in your car.

The AutoPC runs on the Windows CE operating system, which is the same system you'll find on many PDAs. Because the system is based on Windows CE, third-party vendors can



Clarion's AutoPC is a hands-free, in-dash, voice-activated AM/FM stereo, combining car audio functions, computerized digital signal processing, navigation, and wireless communications.

develop applications for it. In addition, it offers a CD drive that reads both music CDs and CD-ROMs (for mapping software, for instance).

As with the systems you purchase directly from the car manufacturers, the AutoPC system offers a number of options, including safety and service options such as roadside services, GPS, and wireless integration. Each of these services is provided by a third-party vendor. You can also use the unit with an over-the-counter cell phone, which you can plug directly into the AutoPC via a USB (Universal Serial Bus) port.

And, like the other services outlined in this article, the AutoPC takes advantage of voice recognition technology to increase safety. You can receive real-time news and weather and check your e-mail messages, all using voice commands. For example, let's assume you want to know what time it is. You begin by saying, "AutoPC," to call the unit. It responds with a musical chime to let you know it's ready. You then say, "What time is it?" and the AutoPC responds with the correct time.

You can check your e-mail, voice mail messages, and even change your CD tracks without taking your eyes off of the road. To use your cell phone, you would say "AutoPC" and wait for its musical chime before saying "Address Book" to activate the address book feature. Once the AutoPC responds by saying "Address Book" back to you, you can ask for a name, for example, "John Smith." AutoPC finds the listing and repeats the name and phone number: "John Smith, 505-555-1212." If this is correct, say "Dial," and AutoPC dials the phone number for you. Using AutoPC

provides this functionality without forcing you to take your eyes off the road or your hands off the steering wheel.

To learn more about AutoPC, see <http://www.autopc.com>. If you want to take a tour, click Test Drive. Then, from the next Web page that displays, click the Test Drive link and the product demonstration opens in a separate window. To view the demo, you will need to download the Shockwave plug-in if you don't already have it on your system.

■ **Driving Into The Sunset.** The telematics industry is still in its infancy, so where it will go and whether it will take off is anybody's guess. Not surprisingly, automobile manufacturers are excited about this industry because they view it as a way to generate revenue from car buyers after they leave the showroom.

As cars become more mechanically reliable with longer warranties to cover part failures, car companies need to find a way to sustain a revenue stream after the sale. Nick Roberts from GM's OnStar service says that this type of service, combined with the cell phone services, can supply a steady revenue source for automakers.

In addition, automakers hope to sell the entire service to other car companies. For example, Honda has signed an agreement to equip the Acura RL with the OnStar service in 2002, and Nissan has agreed to include Wingcast in its cars. Ultimately, however, it's up to consumers to decide if they want a computer governing every aspect of their lives. [E]

by Ron Miller

Skip The PC & Go Online Via Web Terminals

Why They're The Hot Appliance
For Your Countertop



Barbara Weller, a retiree from Texas, doesn't own or use a PC. She bought one two years ago and even took a lesson on how to access the Web, but she found going online so complicated that she returned the computer within a couple of weeks. Still, these days Barbara surfs the Web, communicates via e-mail, reads local news online and more, thanks to a device called the i-opener.

Weller is just one of a growing number of individuals who are connecting to the Internet without ever touching a personal computer. Web appliances such as the i-opener allow consumers to quickly and inexpensively go online, and they're just now beginning to demonstrate their potential in the marketplace.

In the past six months, we've seen a noticeable increase in the types of available devices and in the number of consumers taking advantage of them.

■ **Web Terminology.** Before we delve into how the inexpensive Web access device arena has changed recently—and what the future may hold—let's clarify a few things. Because this is a relatively new industry, the vocabulary has yet to be agreed upon, and it seems as if there are as many different definitions of terms as there are vendors and analysts. You may hear the phrases "Internet appliance," "Web appliance," and "Web terminal" used interchangeably, but they have distinct

meanings, so let's start by making sure we're all on the same page.

Think of an Internet appliance as any type of device, such as WebTV units, Web-ready phones, and handheld devices that give users access to the Internet and e-mail. A Web appliance is a subset of this category; specifically, it is an appliance that provides access to the Web. (For instance, some cell phones that give you e-mail access but not Web browsing functionality are Internet appliances, not Web appliances.) And Web terminals, the items we focus on in this particular article, are a further subset of Web appliances: They are standalone devices with the sole purpose of giving you access to the Web and other related information.

These Web terminal devices vary in function and appearance, but they all have several basic features in common. Unlike PCs, which require robust operating systems and house the ever-increasing resources necessary for running data, gaming, multimedia, and other applications, Web terminals essentially are built for only one function: conducting basic Internet tasks. In order to surf the Web and send and receive e-mail, all that's really needed is a keyboard, mouse-like device, small monitor, modem, and an operating system to keep the system running.

Typically, the user sets the device on the countertop, plugs in a modem and power cord (unless the device is wireless), presses a button and waits just a moment for the machine to ready itself. Then, he begins scouring news headlines, reading e-mail, checking calendar entries, and performing other tasks. Because the Web terminal is relatively easy to use, as compared to a PC, it is often targeted to the non-PC crowd, especially those who are intimidated by the complexity of PCs. As these appliances become more common, however, they are increasingly being marketed as supplemental computing devices that can be integrated with PCs in the home. And the perception that the Web terminal complements a home PC is aided by the fact that the device is fairly inexpensive; most prices are a couple hundred dollars.

■ **From Concept To Countertop.** Web terminals have been under development for years, and the first consumer device has been around since the fall of 1999. But while the thought of them has been intriguing, they haven't yet been particularly well received by the public. In a Jupiter report released in late 1999, the research giant noted "a continued

lack of consumer interest in using non-PC access devices to access Web content." The Trends and Outlook: Web Technology Strategies report went on to say that while 20% of respondents are intimidated, they were likely or highly likely to purchase a PC in the next year, and fewer than 4% were interested in buying an Internet appliance.

A few months later, however, research firm IDC released a report that showed a different attitude. In February 2000, IDC's research showed the entire Internet appliance market beginning to skyrocket, predicting a worldwide market of such devices to exceed 89 million units, or \$17.8 billion, in 2004, up from 11 million units and \$2.4 billion in 1999. The Web terminal devices are a small subset of these numbers, but the 5.5 million units IDC predicts will be sold by 2004 are not insignificant.

Those potential numbers are about to be tested as new terminals hit the market. Just a short time ago, the Netpliance i-opener was the only device available to the public. But in August 2000, Compaq unveiled its iPAQ Home Internet Appliance. Qubit Technology is testing its WebTablet and as-yet-unnamed tethered devices, which are expected to be released in early 2001. Virgin Connect has begun taking applications for renting a small number of Webplayers, devices for surfing the Web and connecting to an online service that features shopping at Virgin Megastores Online. Plus, a number of other companies, including Gateway, AOL, ePods, and CIDCO are developing and releasing similar Web- and e-mail-related appliances.

It's still too early to say how the market will pan out and what final form the devices will take, but industry insiders agree on several trends. One, broadband is the future, and not just for PCs. As more homes connect to the Internet via DSL (Digital Subscriber Lines), cable modems, and ISDN (Integrated Services Digital Network), Web terminals increasingly will be designed with these higher-speed connections in mind. While some devices now offer streaming audio and video, these and other applications will be better able to provide a seamless experience via a faster connection.

Two, the business model will rely more heavily on supplying Internet access to consumers. Many terminals use flat panel displays and other technologies that make them expensive to build, and although they might cost about \$400

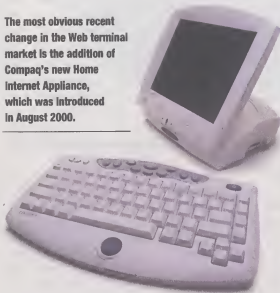
to build, they are being sold for around \$200 to \$300 in order to attract more customers. As a result, companies need to subsidize, and becoming an ISP (Internet service provider) or teaming up with one is a good way to do so.

"We see the market dominated by the service provider," says Bryan Ma, a senior analyst at IDC. "Look at Netpliance. Even though they sell the hardware, they sell the service, and they are really an ISP. Or look at AOL, with 23 or 24 million users. AOL exerts a lot of influence."

And three, the design and functionality of the devices will surely evolve over time. The wireless Internet appliance market is booming—portable handheld devices, Web-enabled cell phones, and other wireless devices are rivaling the pace of PCs—and it is likely it will extend into the Web terminal market, as well.

On the functionality side, Netpliance predicts a huge boom in networking capabilities.

The most obvious recent change in the Web terminal market is the addition of Compaq's new Home Internet Appliance, which was introduced in August 2000.



ASPs (Application Service Providers) let users run applications, such as word processing, over a network rather than on a single machine. Netpliance officials see a day in the near future when the consumer will access the application via the network and pay on a per-use or an always-on basis, rather than installing, upgrading, and maintaining the software on the end machine.

■ **Specific Terminals.** Now, let's look at some of the device manufacturers and see what they've been up to recently.

i-opener from Netpliance. The granddaddy of them all, the i-opener was the first, and until recently, the only Web terminal available to consumers. The simple device

ships with a 10-inch flat panel color display, a full-sized keyboard, mouse, built-in stereo speakers, and a microphone. And, located right on the keyboard is the "pizza key," a button that lets users order pizza directly from Papa John's, a partner of Netpliance.

This pizza key can be viewed as a symbol of Netpliance's approach to the Internet appliance and Web terminal industry. Netpliance's Marc Warshawsky, the vice president of product management, says that Netpliance considers the i-opener an "information appliance," not just an Internet appliance. Not only does the device allow access to the Internet, but it also brings local content (such as the ability to order pizza based on ZIP code) to the user. In the past six months, Netpliance has been focusing its efforts on creating other, similar deals with partnerships that provide additional revenue streams to the company.

In addition, Netpliance has been working on its next generation design. The company has been conducting monthly surveys by asking users where they use the i-opener, for instance, or what features they like best or the least to help determine what direction the product will take. Although Warshawsky says the specific features are still confidential, he hinted at the development of a wireless device: "They're on the road map, but the question is what will the costs look like? Right now we'd have to price them for more than people are willing to pay." Warshawsky also hinted about access to more features, such as digital photography.

The i-opener currently costs \$299, with monthly service charges of \$21.95, under the i-opener 2001 Membership Program. You can demo the product at superstores including CompUSA and Circuit City. For more information, visit <http://www.netpliance.com> or call (800) 467-3637 or (512) 493-8300.

iPAQ Home Internet Appliance from Compaq. Certainly, the most obvious recent change in the Web terminal market is the addition of Compaq's new Home Internet Appliance. Introduced in August 2000, the product effectively doubled the types of devices available to consumers, being only the second such product to make it to mass market. Trey Litel, an executive at Compaq, says the timing was right for a preholiday release. The product had been under development for almost two years, and Litel says

the "engineering challenge of creating the device was not an insignificant task. That's where most of our time was spent." Plus, Compaq was putting the service agreements in place, and it teamed up with The Microsoft Network (MSN) as the ISP.

The iPAQ Home Internet Appliance is targeted primarily at people not on the Internet yet, and its design mirrors that goal. The small, compact device consists of a screen and a wireless keyboard and has only two cords, one for powering the machine and the other (a phone cord) for connecting to the Internet. The software resides on the browser and is upgraded automatically, so users don't have to worry about having the latest features. In the near future, iPAQ Home Internet Appliance users can expect broadband access when MSN is DSL-enabled (Lifel predicts sometime after the first part of 2001).

The iPAQ Home Internet Appliance, model IA-1, costs \$199 (after a \$400 mail-in rebate), provided the user signs up for a 36-month MSN Companion Service agreement at \$21.95 per month. For more information, visit <http://athome.compaq.com> (click Products, then Home Internet Appliance) or call (800) 888-0220 or (281) 370-0670.

WebTablet and Q from Qubit Technology. Another advance in the Web terminal space has been made by Qubit Technology, a company devoted solely to the non-PC Web appliance market. For the past couple of years, Qubit has been developing two Web terminals, a wireless device called WebTablet, and a tethered device code-named Q. The appliances are currently being tested. Margaret McGuckin, chief operating officer, says Qubit hopes to roll out the devices in January 2001.

Unlike the other two devices we've mentioned, the Qubit appliances won't be targeted at the new Internet user. McGuckin says her company is interested in people who know why they should be



The i-opener became a pioneer in the Web terminal market when Netpliance introduced it in July 1999.

online, and the products will be geared toward making their experiences even more useful. To further that end, Qubit is focusing on pairing with distribution partners to help attain and acquire new customers. For instance, financial services could promote the device as a way to better conduct banking

transactions or communicate with customer service representatives.

To see what the devices look like and to read additional information, visit <http://www.qubit.net/products>. Or, call the company at (303) 716-7826.

Mailstation by CIDCO. Finally, let's take a brief look at a related appliance. Mailstation by CIDCO is not a Web terminal, rather, it is an e-mail Internet appliance. Introduced in March 2000, Mailstation claims to be the first stand-alone e-mail appliance. It is a small device that plugs into a phone line to let you send and receive e-mail. It's as simple as that. Plus, it delivers news, sports, and weather headlines from Yahoo!

By August 2000, CIDCO had sold nearly 30,000 of the \$99.99 devices, and the company was predicting more than 100,000 subscribers by the end of 2000. You can buy the device in retail stores such as Staples, Comp USA, Radio Shack, and Kmart, or you can order online through <http://www.mymailstation.com>. You can also contact the company at (800) 398-9382 or (408) 779-1162. **[S]**

by Heidi V. Anderson

Web-Ready Household Appliances

Mention Web appliances, and most people first think of small, PC-like devices with screens and keyboards that sit on countertops and allow you to surf the Web or perform other Internet-related tasks. But there's a whole new breed of Web appliances, those that involve traditional home appliances—the refrigerator, the stove, the blender—but have an added twist. They let you interact with the Web, right from the appliance, and vice versa.

The Screenfridge from Electrolux (<http://www.electrolux.com/screenfridge>) is one of the better-known appliances. For nearly two years, since its debut in February 1999, the Screenfridge has been allowing users to surf the Internet, send e-mail, access a built-in

database of recipes, and more, all without leaving the kitchen. Scores of other companies are also developing Web appliances, and one of the most notable series of Internet-enabled appliances are the Ariston Digital machines from the Italian company Merloni (<http://www.merloni.com/eng/digitale.htm>).

Merloni's *margherita2000* .com washing machine, which was commercially launched earlier this year, allows users to control the appliance via the Web, and the Ariston Digital oven relies on Leon@rdio, a small touch screen that contains a Web browser that lets users download recipes from the Web without going near a PC.

Other products under development include Samsung's Intelligent Microwave, which

links users to food manufacturers' Web sites, and Whirlpool's Integrated Home Solutions Initiative, which includes a new generation of Whirlpool and KitchenAid appliances that are linked to the Internet.

Most of these items are still in development, so we have yet to see how accepted they will be in practice. Will the average consumer really take the time to load a digital washing machine in the morning, and then, before leaving work in the afternoon, visit a Web site to instruct the machine to begin the load of laundry? Perhaps it will all depend on what we become used to. After all, just a decade ago, not many people had even heard about the Internet, and now it's hard for many of us to believe we ever lived without it. **[C]**

Designer E-mail

Enhance Your Messages Using Stylish Tools

E-mail is a relatively new form of communication (compared with pen, paper, and the postal service, that is), but it is no longer a new technology. It's been around long enough now that even people who were once skeptics have succumbed to using and even enjoying its convenience. Thus, you may wonder why we included an article about e-mail in an issue about using the *newest* online tools.

The fact is e-mail is still evolving, changing, and improving every day. You can easily take your e-mail skills to the next level by learning about and adopting a few new tips, tricks, and technologies. In addition to improving and simplifying your own e-mail experience, you can keep yourself up to date on at least some of the newest technologies.

If spam-blocking software, encryption programs, compression programs, and the adding of video and sound to e-mail messages are things you've heard of but never implemented, keep reading. We'll tell you what's new and how it can work for you.

Video & Audio. You may still revel in your ability to write and send messages with the click of a button, but you could be doing more with your e-mail. You now have the luxury of recording short audio or video clips that you can attach to e-mail messages. Even though this may sound like a complicated task, your equipment needs are minimal, and you don't have to be an expert to add these features to your messages.

Audio. To record and send audio messages, look no further than Windows' own Sound Recorder application. This simple software accomplishes exactly what the name implies. Admittedly, Sound Recorder is not the most efficient means of recording audio for e-mail because it does not provide much file compression. Still, you may prefer to use it because it practically guarantees that any recipient should be able to open and listen to the files.



Along with Sound Recorder, you need a sound card with a microphone input (you may already have this), a microphone, and speakers or headphones so you can listen to your recordings before sending them.

In Windows 98, open Sound Recorder by clicking the Start menu and then choosing Programs, Accessories, Entertainment, and Sound Recorder. Before making your recording, you must determine the sound quality. Remember, when it comes to e-mail, the size of the file is more important than the quality of the sound. Open the File menu in Sound Recorder and select Properties. In the Properties dialog box, click the Convert Now button. The drop-down menu under Name lets you select CD, Radio, or Telephone quality. Because Telephone quality is by far the smallest (11,025Hz [hertz] sampling rate in 8-bit mono), it's your best choice. With Telephone quality, a one-minute message occupies only about 660KB (kilobytes) and takes less than five minutes to download via a standard 56Kbps (kilobits per second) modem connection.

To record, click Sound Recorder's red Record button and then speak into your microphone. Click the square Stop button when you finish recording and save the file by selecting the Save command from the File menu. Use

the Play button to replay your recording.

Attach your audio recording to an e-mail message by following the directions for attachments in your particular e-mail program. Frequently, you will find an icon or button on the e-mail screen that resembles a paper clip. Clicking this button should open another window from which you can locate and select the audio file and attach it to your message.

Video. Recording and sending video clips requires a sound card with microphone inputs, a microphone, speakers or headphones, and a PC video camera. PC video cameras typically come in a small kit that includes the camera, as well as the software you will need to record, edit, and play video files.

Operation instructions may vary from one kit to the next, but, as with recording audio for e-mail use, you must keep your video file size to a minimum. Make sure you record at your camera's lowest resolution and lowest color depth settings. Video images are measured in pixels, and although it sounds ridiculously small, a resolution of 320 pixels x 240 pixels is actually a decent size for a video file you intend to e-mail. Similarly, using 16-bit color (up to 64,000 colors) rather than 24-bit color (more than 16 million colors) is best. Furthermore, video typically includes audio;

so make sure (as mentioned earlier) you use a lower sound quality setting.

Record and edit your video clip according to the manufacturer's instructions and then save the file. Many programs offer the capability to capture stills or snapshots of a video image; others enable you to create clever text messaging or "postcards" to accompany the video clip. Most let you automatically send a video e-mail immediately after recording it. If the software doesn't have special e-mail building and sending capabilities, simply follow the same attachment process as the one described above for audio files.

Intel's PC Camera Pack (\$79; 800/538-3373, 916/377-7000; <http://www.intel.com>), Logitech's QuickCam Web (\$79.95; 888/863-8312, 800/231-7717; <http://www.logitech.com>), and Creative's Video Blaster WebCam 3 (\$49.99; 800/998-5227, 877/653-6227; <http://www.creative.com>) are a few popular options that include both camera and software. You can also find the recording software separately. For example, V3mail (<http://www.v3mail.com>) is a free Internet program that makes it easy to send and create voice, video, snapshots, and text e-mail messages.

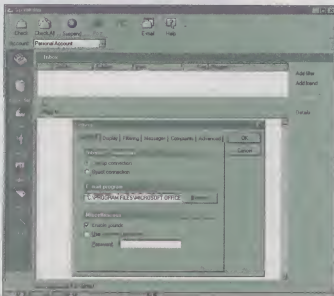
■ **Compression.** Compression of large e-mail attachments is not a new concept; various compression or zipping programs have been available for quite some time. The problem is that people don't use them often enough. Transmission of bulky messages occupies ob-scene amounts of bandwidth and takes far too long to download using a standard 56Kbps connection. Still, many people prefer to cause a few inconveniences than to take the time to compress their file attachments.

Programs such as ASCENT SOLUTIONS' QuantaZip (\$14.95; 937/847-2374; <http://www.quantazip.com>) solve the problem by automatically, or transparently, compressing e-mail attachments without a single extra click. This makes the process so painless than even the laziest of users find themselves inadvertently compressing their attachments. The only catch with QuantaZip is you must use it with Microsoft Outlook. However, message recipients do not have to have Outlook in order to view the files. (NOTE: In our quest for convenient compression, we found

many solutions for large business networks but relatively few for the individual user.)

After installing QuantaZip, you can specify various settings by clicking Options from the Tools menu in Outlook and then selecting the QuantaZip tab. Click the Compression button to choose whether you want to have the program automatically compress files or have it prompt you before compressing each file. Specify file types you don't want compressed or particular recipients that you do or do not want to send compressed files to. Select levels of compression and the minimum file size you want to compress and then decide whether to encrypt zipped files and password protect them.

Click the Decompression button to make choices about the attachments you receive from other QuantaZip users. You can enable decompression for both attachments and message body, and you can set options for receiving files that have path information. Finally,



Installing and configuring spam-blocking programs such as SpamKiller is simple, and we promise you won't miss all the junk mail.

tell QuantaZip how you want to handle password-protected files.

Once you configure QuantaZip, you don't need to do anything else. Whenever you attach a file to an e-mail message and send it, QuantaZip takes care of the compression according to the rules you specify.

■ **Encryption.** At one time, data encryption was something used almost solely by the government and understood by only freakishly intelligent programmers. Not so today; even

the most average of computer users can easily encrypt an e-mail message.

Encryption breaks down into two components called keys. Your private key is unique to you and must remain secure; your public key is to be exported either to a public server, also known as a CA (Certificate Authority), or sent directly to people who will e-mail you encrypted messages. CAs provide both public and private keys. They also offer digital signatures (electronic IDs that enable message recipients to verify a sender's identity) and digital certificates (another form of authentication that can absolutely prove or disprove your electronic identity).

If you want to use the encryption tools with your e-mail program, including Netscape Messenger, Microsoft Outlook 2000, and Microsoft Outlook Express 5.0, you must first create public and private keys through a CA, such as VeriSign (650/429-3400; <http://digitalid.verisign.com>). In the Outlook 2000 or

Outlook Express 5.0 e-mail programs, choose the Tools menu, click Options, and then select the Security tab. Click the Get A Digital ID button to access VeriSign's Web site. (If you don't use Outlook or Outlook Express, simply go to VeriSign's Web site and click Personal ID. The ID costs \$14.95 per year, and you have the option of a 60-day free trial. Follow the registration instructions, filling in all the required information.)

You should then receive an e-mail containing a link to VeriSign's site where you may download and install the necessary files. Next, point your e-mail program to the private key or certificate file. In Outlook, open the Tools menu and choose Options and Security. Click the Change Settings button. Click the Choose button beside Signing Certificate, highlight the certificate you just downloaded, and click OK. Do the same thing for the Encryption Certificate field. Finally, enter a name for your new security setting, and click OK. In Outlook Express, click the Tools menu and select Accounts and then Mail. Select your e-mail account, click the Properties button, and choose the Security tab. Use the Select buttons to find and highlight your new certificate for both signing and encrypting. Click Apply and then click OK.

To send an encrypted message, you must already know the recipient's public key. In Outlook, open a new message and select Options from the View menu. Place a check by either Encrypt Message Contents And Attachments or Add Digital Signature To Outgoing Message. In Outlook Express, open a new message and choose Encrypt or Digitally Sign from the Tools menu.

Should you decide against using a CA, such as VeriSign, for your security needs, consider one of the many encryption software packages available for individual users. PGP (Pretty Good Privacy) Software, one of the more popular programs, is free to noncommercial users. You may download it from the MIT Distribution Center for PGP (<http://web.mit.edu/network/pgp.html>). Other software options include MAILguardian (\$19.95; 888/450-0775, +972-4-9891311; <http://www.vguard.com>), 1on1ite (\$98; +44 0181 346 0770; <http://www.1on1mail.com>), and InvisiMail Lite (\$10; +44 1624 690234;

<http://www.invisimail.com/main.html>).

■ Spam Blockers.

Few things irritate people as much as the thick smatterings of spam (unsolicited bulk e-mail) that plague any and every available inbox. Fortunately, spam-blocking software now offers a glimpse of relief.

Novasoft's SpamKiller (\$29.95; 888/236-2446, 913/469-5900; <http://www.spamkiller.com>) lets you filter any part of a message, including the text, header, and country code. After downloading and installing Spam-Killer, use the Getting Started Wizard, and tell it which e-mail program you



After installing QuantizeZip for e-mail attachment compression, you can easily change its various properties through Microsoft Outlook's QuantizeZip tab.

are using. Then you need to import your address book and enter more information about your e-mail account. To finish, make sure SpamKiller can access your account.

Once set up, SpamKiller runs in the background, periodically checking your mail for you. For the program to properly filter the messages, you must disable any automatic mail checking in your e-mail program. SpamKiller automatically starts your

e-mail program when you receive new mail. If you hear a gunshot sound when it checks your mail, you know it detected a piece of spam and deleted it.

That's all you have to do to set up and run SpamKiller. However, should you decide to make a few administrative changes, you can open the program's main window by double-clicking the envelope icon on the Taskbar. Use the Killed Mail button to view the automatically deleted junk mail. (If a legitimate message is deleted accidentally, you can forward it back to your inbox.) Choose Add Filter to specify another way for SpamKiller to identify junk mail; choose Add Friend to identify characteristics of messages you definitely want to receive. Select the Account button to add, remove, or change the properties of the e-mail accounts that SpamKiller monitors. Finally, use the Settings button to alter general settings, such as your Internet connection, password, display properties, filter types, message instructions, and handling of spam complaints.

Other good spam-blocking programs include Contact Plus' Spam Buster (\$19.95; 800/366-9876, 321/984-2592; <http://www.contactplus.com>) and High Mountain Software's SpamEater (free; <http://www.hms.com>).

New things happen online every day; it's impossible to keep up with all the changes and upgrades. Although you can't expect to stay on top of each new development, you can work on incorporating one or two new products, or technologies at a time. In the end, if you improve the way your e-mails work, your mission is complete. **15**

by Hannah Henry

Send A Zaplet

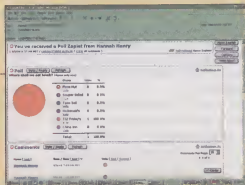
Coordinating input and making decisions with a large group via regular e-mail present the most frustrating tasks of sending messages, waiting for responses, tallying the consensus, and then communicating the results for final approval. Zaplets eliminate the hassle. Zaplets are a way to make your e-mail even more interactive. FireDrop's Zaplets (<http://zaplet.zaplet.com>) enables people to discuss big issues, gather opinions, and make group decisions with ease.

Membership to MyZaplets is free and offers a few handy tools, but it is not necessary to send a free

Zaplet. You may send a Zaplet by clicking the New Zaplet tab at the top of the page and then choosing the type of Zaplet you want to send. Author the Zaplet by filling in the required fields, which vary depending upon the type of Zaplet you choose. You may use Poll Zaplet, for example, to question recipients about their opinions on a particular topic. First, fill in your name and e-mail address along with your recipients' e-mail addresses. Then pose your question and list the answer

options from which the recipients may choose. Click the Send button when you are through. You also will receive a copy of the Zaplet in your e-mail box so you can view the same message as your recipients. When someone sends a response, the Zaplet automatically updates itself, showing each recipient the latest votes and comments.

Other Zaplet options include Discussions, Schedules, Pictures, Invitations, Tables, Tasks, and Contacts. **16**



Zaplets are special e-mail messages that help you manage group decisions, such as where to meet for lunch, via e-mail. As each recipient enters his opinion, the other recipients see the results change on their own Zaplet.

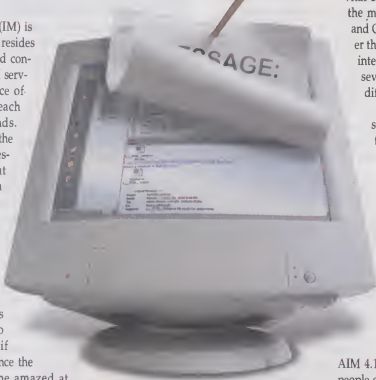
Chatting About Instant Messengers

Features That Keep IM Users Happy

An instant messenger (IM) is a software client that resides on your computer and connects to an IM server. The IM server tracks the online presence of users who have identified each other as "buddies" or friends. When buddies are online at the same time, they can send messages to each other without the delay of e-mail. America Online pioneered this field in the very early days of the AOL service. Today, AOL dominates the IM market with more than 90% of registered IM users.

You may be wondering why we're writing about IMs in an issue dedicated to "what's new online." Well, if you haven't looked at IMs since the early days of AOL, you'll be amazed at what's new. There are new choices for instant messaging software and many new features, including voice messages, voice chat, PC to telephone service, and additional ways to find a community of people you want to talk to.

There are newer IM releases (several in beta testing at the time of this writing) from AOL (AOL Instant Messenger is known as AIM), ICQ (ICQ stands for "I seek you," and is now owned by AOL, but retains a distinct identity), and Yahoo! (Yahoo! Messenger). Plus, there are newer faces on the IM scene, such as CenterSpan Communications' Socket. Other major players with IM service are Microsoft with MSN Messenger, Prodigy with its Instant Messaging (PIM), Tribal Voice's PowWow, AltaVista's Messenger, and Odigo from Odigo Inc. There is even some movement in the development of a common message protocol so that people using different IM clients can find and send messages to each other.



■ Does It Matter Which IM I Use? In general, when you use an IM client, you can only find and send messages to people who use the same IM service. All IM services have their own client that you can download for free. Once you've downloaded an IM client, register with the IM service, choose a screen name, and set your password. You're then able to find and send messages to others using the same IM service. A few IM services, such as PowWow and Odigo, provide access to one or more other services. This lets you communicate with friends who have registered on a different service.

In the long run, it shouldn't matter which IM client you use because of the standards effort being pushed by IMUnified (<http://www.imunified.org>) and the Internet Engineering Task Force (IETF; <http://www.ietf.org>). IMUnified is a group that

includes Microsoft, AT&T, Yahoo!, Tribal Voice, and others who are looking for a quick solution to IM interoperability.

IETF is looking at long-term issues and solutions.

The biggest problem facing both of these organizations is that AOL is blocking any move that lets outside clients access its AIM servers. Without AIM, the standards effort is doomed to fail. With AIM in the fold, IM could really take off as a means of communicating vital business and personal information. In the meantime, IM clients such as PowWow and Odigo try to connect with AIM whenever they are not blocked by AOL, and people interested in using IM services download several clients so they can connect with different communities of users.

All IM clients and services provide the same basic ability: to use your keyboard to chat online with people you identify as buddies or friends. Beyond this basic ability, there is a growing list of other features that IM services are implementing. The competition is fierce, so whenever a feature is implemented by one of the IM leaders, the other IMs quickly follow suit. In the following descriptions of the most common IM services, we'll detail several of these key features.

■ AOL Instant Messenger.

AIM 4.1 currently has more than 64 million people enrolled. AIM users can send messages to anyone with the AIM client, as well as AOL subscribers and Compuserve 2000 subscribers. Like most IM clients, AIM provides an easy-to-use interface that lets you send and receive photos, images, sounds, and animation as instant messages. You can also get instant alerts that let you track stocks or find out when a buddy has signed on to AIM.

New features in 4.1 include e-mail alerts that automatically check multiple e-mail accounts and provide a single location for accessing all of your e-mail. There is also a new voice chat feature that lets you talk to anyone else with version 4.1, a sound card, microphone, and speakers. Plus, you'll also see a stock ticker that can display symbols or full names, and will support international stock symbols and indexes, as well.

To download AIM, visit the AOL Instant Messenger page (<http://www.aol.com/aim/>), and follow the links to download the

latest version. AOL asks you to choose a screen name and password and enter your e-mail address before you can download the client. AIM supports Windows and Macintosh versions.

■ **ICQ.** Traditionally, ICQ has been favored by more advanced computer users. That's changing with the Simple Mode operation in more recent versions of ICQ, such as 2000a, but even this interface is less intuitive than AIM and other IM clients.

ICQ provides text and voice chat, and has a link to Net2Phone that gives you low long distance telephone service from PC to PC and PC to telephone. With ICQ, you can send files and greeting cards, set up an ICQ home page, save Notes, and enter To Do lists and Reminders (just like those that popular e-mail clients include).

With ICQ, you can connect with others using EmailExpress, a 450-character message that pops up on the receiver's screen if he's online. If he isn't, the message appears as soon as the person connects to the Internet. You can also send standard e-mail directly from ICQ, or send a chat request. ICQ provides a search engine that lets you find other ICQ users based on their name, ICQ number, or interests.

To download ICQ, visit the Free ICQ Software page (<http://www.icq.com/products>). You can select a version for any platform, including Windows, Macintosh, PowerPC, Java, and Palm.

■ **MSN Messenger.** The best new feature of MSN Messenger version 3.0 is the ability to place free PC to PC calls to anywhere in the world and PC to telephone calls to anyone in the United States or Canada. We made an intrastate call and a cross-country call and found that the sound quality was pretty good for the intrastate call, but not nearly as good as a standard telephone connection for the cross-country call. The biggest problem is that you really must use a quality headset with a noise-reducing microphone to have acceptable voice communications (but this is true for any PC-based voice communications task). You also have to put up with some on-screen advertising when you use the free calling service.

To use MSN's free calling feature, follow these simple steps:

1. Download MSN Messenger and install it.
2. Register and choose a username and password.

3. Open MSN Messenger, and click the Call button in the toolbar.
4. Select the Dial A Phone Number menu option to display the Phone Call dialog box.
5. If this is the first time you've used your headset with a Windows program, you should use the Windows Audio Tuning Wizard. To do this, select Tools from the Phone Call dialog menu, and then select the Audio Tuning Wizard menu option. Go through the Wizard and follow the instructions provided.
6. Use the telephone push button pad in the Phone Call dialog box, or type the phone number in the text field. The field saves numbers you've called in a drop-down list.
7. Click the dial button.
8. When the other person answers, start talking.

Like AIM, ICQ, and others, you can send pictures, music, or documents directly through MSN Messenger. Another new feature of version 3.0 solves one of our pet peeves with typed chat: We don't like it when someone sends a message while we're in the middle of typing a response to the previous question or comment. With the MSN Messenger automatic typing indicator, you and your correspondent can see when the other person is typing a response, so you don't interrupt by sending another message. Even if you don't have voice communications capability, this feature makes MSN Messenger worth considering.

To download MSN Messenger, visit the MSN Messenger Service page (<http://messenger.msn.com>), and click Download Now! for the latest version. MSN Messenger requires a Microsoft Passport account, which is a single login that lets you use MSN Hotmail, MSN Communities, MoneyCentral, and other sites. If you already use Hotmail, then you already have a Passport account. If you don't have a Passport account, follow the link to sign up. The link opens a new browser window with a form for you to fill in. Once you have your Passport account, click the Next button on the main browser window to display a page

with a Start Download button. Follow the instructions on that page, and you'll quickly be up and running with MSN Messenger.

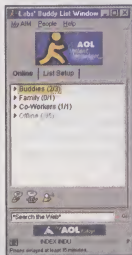
■ **Odigo.** Odigo is one of the newest IM services. In addition to standard IM features that let you add friends, family members, and work contacts, you can join various communities and use voice as well as typed chat.

The Odigo client is fun and easy to use. Odigo lets you choose a picture to represent yourself, and the interface uses several graphics and cartoons. The Odigo profile lets you define your age (or age group), gender, location, language, occupation, and marital status, all of which are similar to other IM services. Odigo also has settings for your mood (indifferent, happy, flirtatious, mellow, bored, etc.), your intention (meet new friends, romance, small talk, business, etc.), and your zodiac sign.

Once you're logged in to Odigo, you can use these profile attributes to search for or view people in the People Finder. The People Finder lets you see anyone logged in to Odigo or people who are browsing the same Web page or site as you. The Odigo Main Panel has a button that opens a Wing. The Wing lets you specify criteria for finding people based on the attributes they selected for their user profile. For example, you can choose to "see" all females that speak English, are single, feeling flirtatious, and within a certain age group. Then, as you browse the Web, the People Finder shows other Odigo users who meet your selection criteria and are viewing the same Web site.

Another key feature of Odigo is that it lets you import your buddy list from AIM, Yahoo! Messenger, and ICQ, and you can chat with people who use these IM services. The word of caution here is that AOL has periodically blocked Odigo access to AIM and ICQ.

To download Odigo, visit its Global Download Center page (<http://www.odigo.com/download>), and click the Smart Download link. This takes you to a page that provides reviews of Odigo and buttons to Download Now or Download Later.



AOL Instant Messenger has a user-friendly interface that's clean and simple, with only a few buttons, a search field, and its scrolling stock ticker.

■ **PowWow.** Tribal Voice, the developer of PowWow, is one of the leaders in the movement to permit interoperability of IM services. In addition to the PowWow community, PowWow can access AIM and MSN Messenger.

Among PowWow's many features are instant messages that pop up on the other person's screen, a buddy list that alerts you whenever a buddy comes online and is available, voice chat, and InstaVoice that lets you leave a voice message for the other person. In addition, you can use text-to-speech to listen to online typed discussions.

PowWow also has a bulletin board and other group features such as group chat and white boarding to exchange sketches and notes while chatting online. You can also lead a group on a Web site tour. While conducting the tour, you remotely control the other group members' browsers and let the group continue online discussions about pages that you display. PowWow is also great as a multiuser gaming tool that lets you play cards, checkers, dominoes, chess, and other games via the Internet.

To download PowWow, visit Tribal Voice's Download PowWow page (<http://ww2.tribal.com/download>), and click the button for the type of download you want to perform. Tribal Voice provides a Web install option that lets you select items you want to download and reduce your total connect time. They also have a more traditional FTP (File Transfer Protocol) download process that downloads the entire application for you to install.

■ **Prodigy Instant Messaging.** PIM is available to users of the Prodigy network, as well as other users. It turns out that PIM is a version of Odigo that has a customized Prodigy look. It has all the capabilities of Odigo, except the ability to connect to AIM, Yahoo! Messenger, and ICQ.

You can set the Wing selection criteria to search for only PIM or all Odigo communities. To download PIM, visit its Installation page (<http://pim.prodigy.net/install.html>), and click the Full Version button. Follow the on-screen instructions to install the client, set up your account, and get started using PIM.

■ **Socket.** CenterSpan Communications is marketing its Socket client as an "Internet Activity Hub." Socket has traditional IM features such as a buddy list and person-to-person chat. It also supports multipoint audio for voice conferencing and multiplayer online games. One of Socket's unique capabilities is the ability to launch multiperson collaborative programs while continuing to communicate with text or voice chat.

Socket also provides a Compare & Share feature that lets users see who has the same programs and who does not. You can then invite buddies to download a program that you want to share with them, such as a multiuser game. Multiuser gaming is probably the hottest feature for many Socket users. You can easily see who is currently using one of your favorite games and then join the fun. Or, you can start a game and invite others to join (or open the game to anyone), and as we already mentioned, you can encourage your gaming buddies to download the same games. In addition, Socket provides one-click access to popular download-



The MSN dialer lets you place free long distance calls from your PC to a telephone anywhere in the United States and Canada.

able multiuser games.

Socket supports Microsoft's Direct Play Lobby (DPL) protocol and the H.323 standard (for Internet audio, video, and data communication). There are currently more than 130 multiuser DPL-compliant games and 35 free demo titles available to choose from. H.323 applications also include desktop-based video conferencing products such as Microsoft NetMeeting and Intel PC Camera Pack and VideoPhone.

To download a version of this IM for Windows 95, 98, or 2000, visit the Download Socket page (<http://www.getsocket.com/download>), click the Download Socket link, and follow the instructions to install Socket. At the time we wrote this article, there wasn't a Windows NT version.

■ **Yahoo! Messenger.** The newer beta version of Yahoo! Messenger adds several important features. You can now go directly to a Yahoo! Chat room from within Messenger just by clicking a button. Both the Instant Message and Chat windows added smileys to

express emotions, font effects, and color change settings. Both windows have a new toolbar that lets you send smileys, transfer files, invite users to talk, and enable voice communications.

The Yahoo! Messenger window displays all your friends and has status icons that let you know when your friends are online, idle, or busy. With voice chat, you can talk to your friends who have downloaded this version.

You can also search the member directory to find friends by name, keyword, or Yahoo ID. You can further restrict searches by gender, age range, and whether their profile includes a picture.

This newer version of Messenger lets you configure tabs for stock quotes, news, sports, weather, Web bookmarks, travel, auctions, your Yahoo! calendar, and friends. You choose which pages you want visible. Then, for each tab, you can configure what you're interested in.

For example, you can set the Auctions page to monitor a Watchlist of items that you are selling or bidding on. The Weather and Sports pages automatically show information for your area, plus you can configure the Sports page to show results of any teams of interest. There's also an overview page that shows items you've configured.

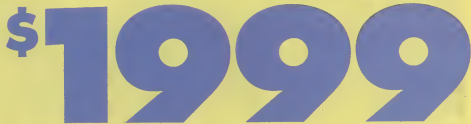
To download this IM client, visit the Yahoo! Messenger page (<http://messenger.yahoo.com>), and download the version you need for your computer. Yahoo! Messenger has versions that run on Macintosh, Unix, Palm, Windows CE, and some cellular telephones.

■ **Which Client is Best For You?** Since downloading an IM client and joining an IM service are free, why not download several and see which you like the best? You might even decide to continue using more than one to accommodate all your buddy lists.

The new IM standards should lead to greater interoperability, and at some point, even AOL and ICQ will probably need to conform to unified standards. When that happens, IM use and the total number of users will dramatically expand, and new IM applications will become an integral part of our daily business and personal computing experience. **[E]**

by Jay Mathler

WinBook Si

[illegible]

Digital Convergence Devices

Scanning For More Product Information Has Never Been This Easy

It is not uncommon for magazine advertisements to list a Web site address just in case you want more information. They usually direct you to the company's home page, but sometimes they expect you to type in a complicated string of code to retrieve the information on that particular product or service. Two new products are trying to help users bypass typing URLs (universal resource locators, Web addresses) by taking you directly to the Web page you want when you simply scan a particular part of the ad.

As URLs get increasingly more complicated, products by companies such as Digital Convergence and Digimarc help you quickly find online information that's related to the print information you see. This article will look at their new products: the :CueCat reader and MediaBridge. Both products are designed to quickly lead you to information relevant to products you are examining in one medium—print—by utilizing another medium—the Internet.

■ **:CueCat Reader.** The reader is a white plastic cylinder with an infrared scanner where its nose should be. It projects two red beams that it uses for scanning, giving it the look of two cat's eyes. The cord comes out where its "tail" should be and the plastic is molded into ears and paws, giving it a cat shape. Place it on your mouse pad to display your cat and mouse together.

The :CueCat reader started getting a buzz in August 2000 when *Forbes* and *Wired* magazines sent the device to more than 1 million subscribers. At the beginning of September 2000, :CRQ.com (<http://www.getcat.com>) and Radio Shack began giving them away. The

instructions are simple enough. Scan any type of "barcode" to display a Web page full of information pertaining to that ad.

You can even use :CueCat to scan UPC codes like those found on grocery items such as bread or canned corn; ISBN codes such as those found on books or CDs; or cue codes, a new type of left slanting barcode created by Digital Convergence for use in print. Advertisements with cues are now running in *Forbes*, *Wired*, and *Parade*, as well as several major market newspapers. Radio Shack has also used the cue codes for its entire product catalog, which you can get when you pick up a :CueCat reader from Radio Shack. Digital Convergence is also working with newspapers and textbook publishers to offer cue links to online multimedia clips.

■ **Digimarc MediaBridge.** Digimarc has been around since 1996, leading the way in digital watermarking technology. Digital watermarking is a technology used to protect images from unauthorized duplication. This fall, Digimarc launched MediaBridge software that lets you hold up digitally watermarked print ads in front of a Web camera and then jump to a Web page related to the ad. Ads watermarked by Digimarc have already been seen in *Popular Mechanics* and *Wired* magazines. More than 160 magazines, ranging from

Oprah and *Cosmopolitan* to *Sports Illustrated* and *Fortune*, will soon carry watermarks in their ads, too. Advertisers who license the watermarking technology dictate their own links to Web content.

Hoping to move beyond print, Digimarc is pursuing clothing and other manufacturers to include watermarks. Its idea is that anything can be watermarked and linked to relevant Web content, including clothing and watches. Although it develops the software and licenses the watermarking techniques, Digimarc depends on consumers to use Web cams hooked up to computers. It estimates that within five years, Web cams will be as standard on computers as speakers are today.

■ Get Your :CueCat To Start Purring.

To obtain the :CueCat reader and :CRQ software, visit :CRQ.com or your local Radio Shack. Radio Shack will ask for your name, address, and phone number when you get to the store. Ordering the :CueCat reader online from :CRQ.com costs \$9.95 in shipping and handling charges, but you can download the :CRQ software for free from the site. To use the software, you either need a :CueCat reader or you must type in the cue code or barcode (but that does not save you much time in comparison to typing in the URL).

To use the software and reader, you'll need a Pentium or equivalent processor, 32MB (megabytes) of RAM, as well as Windows 95, 98, NT, or 2000. Of course, you'll also need Internet access and either Microsoft Internet Explorer, Netscape Navigator, or AOL (versions 4.0 or newer). If you're installing the software from CD-ROM, you'll also need a CD-ROM drive. Plus, if you have an older computer, you may need to purchase an adapter to plug the :CueCat reader's cable into your computer, and the adapter is conveniently available at Radio Shack.

Before installation, shut down Windows and turn off your computer. Disconnect the keyboard cable from your computer. The :CueCat reader uses a pass-through y-cable to allow both the reader and your keyboard to



plug into the same port. Plug the male end of the reader's cable into the computer's keyboard port. Now connect the keyboard's cable to the female end of the y-cable. Now that both the keyboard and reader are connected to the same port, turn on your computer and make sure that the red lights on the :CueCat's nose light up. The lights signify that the reader is functioning; they will always stay on while your computer is turned on. If the lights go out, check your connections and visit the support area of :CRQ.com.

Next, install the software. Insert the CD-ROM into the drive. The setup program should start immediately. If it does not, double-click the My Computer icon, the CD-ROM drive icon, and then the Setup.exe icon. Follow the directions on-screen to install the software. It asks for your name, address, and e-mail address for registration purposes. As the software loads, you can listen and watch the videos that walk you through the installation of the :CueCat reader (if you haven't already installed it) and provide instructions on using the reader.

Toward the end of the installation, the software needs to connect to the Internet to transmit your registration information to Digital Convergence. If you have a dial-up connection, this process goes faster if you establish the online connection prior to installation. At this time, you can choose to fill out an additional survey to receive more targeted offers via e-mail. You will then receive an e-mail message containing a licensing agreement and your :CueCat reader's activation code.

Once you receive the activation code, return to the software window and enter the code. You need to use your registration e-mail address when you activate the :CueCat. Up to five people per family can have their own activation on the same software. Visit <http://www.crq.com> to register for additional activation codes.

Hold the :CueCat perpendicular to the cue or barcode you want to scan. Place the nose of the :CueCat to the left of the cue and align the paws of the :CueCat with the bottom of the cue. Quickly swipe across the face of the cue from left to right. If it does not register, swipe it back and forth quickly. Keep the reader in contact

with the cue while you swipe. Keep the speed of the swipe quick and constant for best results.

■ **Build The MediaBridge.** To use the MediaBridge software, you need a computer with a 200MHz or faster processor; Windows 95, 98, or 2000; IE or Navigator (versions 4.0 or newer); and a Digimarc-approved Web camera or TWAIN-supported scanner. In addition, you need Adobe Acrobat Reader (3.0 or newer, which is free to download at <http://www.adobe.com>) to read the accompanying documentation.

Digimarc has approved several Web cameras for use with its software: Intel's PC Camera Pack, PC Camera Pro Pack, and Pocket PC Camera; Philips Electronics' Vestra and Vestra Pro; 3Com's HomeConnect; IBM's PC Camera Pro, PC Camera Pro Max, and UltraPort Camera; and Creative Labs' VideoBlaster WebCam Go. Some support is also available through Digimarc's Web site at <http://www.digimarc.com>. (For more information about Web cameras, see "Install A Web Camera" on the Smart Computing site at <http://www.smartcomputing.com/email.asp?emid=4173> or visit your Web cam manufacturer's site.)

Make sure your screen resolution is set to at least 800 x 600 and colors are set to 65,536 or higher. If you do not have a Web cam, MediaBridge also will work with any TWAIN-interfaced scanner.

Next, go to <http://www.digimarc.com> and download the MediaBridge software. It will ask for contact information, including your name, address, and e-mail address. The file, Mediabridgeapp.exe, is only 141KB (kilobytes) and shouldn't take long to download. You must be online during the installation so that your registration data can transmit to Digimarc. Simply double-click the installation program

Images watermarked for use with a Digimarc MediaBridge have an asterisk-like star with a letter "D" in the center.

and follow the directions. The installation takes less than a minute.

Make sure the MediaBridge software is the active application. When you find an ad marked with the MediaBridge asterisk-like star with a letter "D" in the center, hold the page about 5 inches from the Web cam, and use the focus ring to bring the most important or most prominent picture on the page into focus (not the MediaBridge symbol). The watermark is included in the image and is the key to instantly displaying the Web page associated with the product.

At least part of the image needs to appear clear and sharp in the camera's view. Slowly move the page back and forth from 5 to 7 inches from the camera. When you get a successful read, you will automatically link to the associated Web site. Be sure to bring the MediaBridge application window to the front before attempting to scan another page.

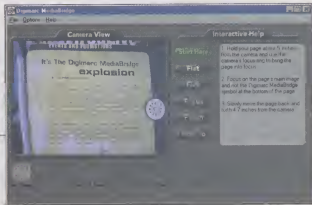
If you are using a scanner instead of a Web cam, select Preferences from the Options menu, and select scanner as the image source. Now, place the ad face down in the scanner. MediaBridge should detect the watermark and take you to the associated Web page.

■ **The Learning Curve.** These new technologies are not perfected yet, but each has the right idea: to help you save time when searching for specific information related to ads or products. Sometimes the image or cue just will not scan. At other times, you might find that there is no associated Web page, and when that happens, Digital Convergence asks you to suggest one. While the databases fill up with associated Web pages, this technology will continue to spread and become increasingly common. Before long, you'll find an endless stream of magazine ads with watermarks or cues. **LS**

by Greg Chicks



The :CRQ software used with the :CueCat reader shows your most recent cue scans and lets you save them for later.



Search Science

Search Engines Move Beyond Boolean



Without a road map, the Web can be chaotic. Searching for information can be a frustrating journey through broken links, dead ends, and inaccurate or irrelevant pages. That's why search engines are so important.

A search engine is a program that scours the Internet to locate information that matches your search string. When you enter keywords and click the Search or Find button, the search engine compares your search keywords to the keywords found in its index of sites. This index is usually created by automated software "crawlers" that constantly forage the Internet for new sites. In the past, search engines were more easily distinguishable from sites like Yahoo!, which began as Web directories created by editors. Now, however, most search engines offer directories of sites compiled by human editors in addition to indexes and vice versa.

The more specific your search request, the greater the likelihood that the material the search engine finds will be relevant. Multiple word searches using Boolean operators (AND [+], OR, NOT [-]) have a higher

success ("hit") rate than information-poor single word searches. However, sites differ with respect to their Boolean requirements, so single word searches continue to be popular. Because most search engines have a new feature called related search options, users can enter a single word, then refine or narrow the search by selecting keywords from a list of related word suggestions.

At Lycos (<http://www.lycos.com>), related search terms are generated from a body of information gathered from searches performed by fellow users. For instance, other users who searched for "Beatles" also searched for "John Lennon," so a search for Beatles generates John

Lennon as a related term. In addition, at the top of every Lycos search results page, under the heading Popular, you'll find a list of the most popular links related to your search request.

Today, search engines such as Yahoo! (<http://www.yahoo.com>), AltaVista (<http://www.altavista.com>), and Excite (<http://www.excite.com>) offer more than just keyword and related search options. They serve as portals, doorways that lead to all kinds of content and services. Many of these portals can be personalized. If you register with a portal site and provide a certain amount of personal information, the portal home page will display weather reports, stock quotes, and news headlines that reflect your location and interests. For example, if you sign up for membership at Excite (it's free), you can configure your own Start Page, customized with your color scheme and containing only the content you care about—information about your stock portfolio, local TV and movie listings, your favorite teams' game scores, your daily Scorpio horoscope, your local weather, airline miles, and more.

Many sites, as we've said, offer Web directories and these are usually good places to begin your search. Human editors review, evaluate, and categorize thousands of sites based on content, and these directories typically include brief category descriptions. To locate information by category, you simply click one of the broad subject areas, then progressively narrow your search by traveling deeper into the selected topic. The more you dig, the more levels you uncover, and the greater the chances of finding what you need.

While Web directories at several search engine home pages use tree-like structures offering progressively narrower browsing capabilities, the approach they use for information retrieval is not identical. Some team up with search engines offering keyword searches,

*The size of a search engine's index isn't always
a good indicator of that engine's usefulness or relevance.*

*The way information is retrieved is just as important
as the total volume of information available.*

others do not. For example, the LookSmart Web directory (<http://www.looksmart.com>), which in turn powers the search directories of portals such as MSN, Excite, AltaVista and CNN.com, uses only listings from its own index of more than 1.8 million Web sites sorted into 170,000 categories.

Natural Language Search Systems. The size of a search engine's index isn't always a good indicator of that engine's usefulness or relevance.

The way information is retrieved is just as important as the total volume of information available.

Natural language questions are a fairly recent development in search engine technology. Ask Jeeves (<http://www.askjeeves.com>) features a powerful Natural Language Search system, which uses ordinary questions rather than keywords or Boolean operators. In addition, Ask Jeeves' newly-patented popularity search technology analyzes the searches of millions of other Internet surfers to determine which sites have been the most useful in satisfying search requests. The more useful the site, the higher its Ask Jeeves relevancy ranking and the more likely that it matches the user's request.

AltaVista also has natural language capabilities, but it defines relevancy ranking differently from Ask Jeeves. It returns a list of all documents containing at least one of the user's search keywords, ranking results according to how many keywords were found in each document.

New Approaches. Internet search engines must constantly add new search resources to keep up with user demands for improved, faster, and more accurate information retrieval. Sometimes the changes they adopt are little more than cosmetic, for instance, simply increasing the number of matches returned per page. But sometimes they employ new technology. Danny Sullivan's Search Engine Watch (<http://searchenginewatch.com>) provides a rich source of information on the constantly evolving search engine world.

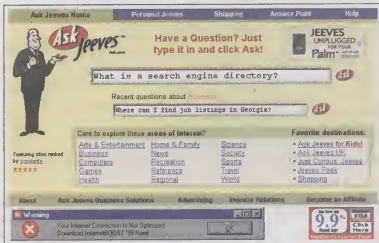
Webhelp.com

To distinguish itself from conventional search engines, Webhelp.com (<http://www.webhelp.com>) makes use of Web wizards—actual people—to provide Web surfers with “real answers in real-time.” The Wizard that Webhelp.com provided us was named Wallace. It took him six minutes to process the initial query and make contact. Our exchange lasted considerably longer.

To initiate a search session, users enter their search request in a chat-like window. The human search agent then interacts with you in real-time chat to determine exactly what you need. The Wizard doesn't answer your question. Instead he or she directs you to appropriate sites by displaying Web page matches in a frame to the left of the chat window. After terminating the session, you receive a Webhelp.com e-mail from the Wizard with a summary of the chat exchange and links to the

where on the page they appear, and how many other pages contain those words. With link analysis, AltaVista's search tool determines the relevance of a Web page by evaluating how many other pages link to it. If numerous other pages link to it, the match is considered a high-quality page.

Raging Search will look for exact phrases if you place the text inside quotation marks (e.g., “New York Yankees”). You can use + and - qualifiers to improve the search, as well as special fields to locate hyperlinks, Java applets, domain names, host names, images, and URLs. A Customize option allows you to tailor Raging Search results to your needs. (You can include a title or site description, use the “more like this” option, see brief descriptions of the results, and more.) If you click the Page Layout tab on the Raging Search Customize page, you can configure the search engine to display 20, 50, or 100 results per page, rather than just the regular 10.



At the Ask Jeeves Web site, visitors pose natural language queries to locate the information they need on the Internet.

Web sites the Wizard recommended. Webhelp's “basic” service is free, but users who pay 99 cents per search or \$9.99 per month for Express service, secure a place at the head of the Webhelp search queue.

AltaVista

AltaVista now offers a Raging Search tool (<http://ragingsearch.altavista.com>). The Raging Search Web tool searches for matches in its index of over 350 million Web pages, taking advantage of text relevance and link analysis to locate the best matches. With text relevance, matches are ranked in terms of how many times the words appear on a page,

particular articles, and relevant Web sites. These human filters compile their information from wire services, online newspapers, magazines, and other subject-oriented sites.

Lycos

If you use Lycos as your search tool, you can take advantage of its free SearchGuard service (formerly known as SafetyNet), enabling customers to filter content (including banner ads) containing pornography, violence, weapons, and hate material. The tool filters content by dropping problematic keywords from the search request and by limiting the relevance rating of Web sites containing objectionable

content. To activate Lycos SearchGuard, you must create a SearchGuard password and select the kinds of content that you want to filter out.

Excite

Excite's new personalized Internet browser toolbar (<http://toolbar.excite.com>) provides instant access to Web content and services. (It's currently unavailable to Mac users.) Featuring Smart Search capabilities, this combination text highlighter and search tool allows users to select any product found on any Web page, then click the Excite Shopping button on the toolbar for a list of Web sites that sell the product. In addition, users can click the Excite News button to retrieve the latest new articles about the highlighted product.

Google

Google (<http://www.google.com>), a search engine famous for its super-fast search capabilities, now features a new Web Directory page allowing you to search by categories, as well as an option to search in different languages. When Google returns a list of matching sites, it will also provide a list of suggested categories at the top of the search results list. Select a category to view the Google Directory, which will list several sites for that category. Some search hit pages will contain Category link options that display below their listings. Selecting the link takes you to an area listing your selection plus related sites. If you're a devoted Google searcher, you can now add Google Browser Buttons to your browser toolbar. The Google.com button takes you to the site's home page; the Google Scout button elicits a list of sites similar to the one you're visiting when you press it; and the Google Search button lets you conduct an instant search after you highlight a word or phrase on a Web page.

LookSmart

LookSmart (<http://www.looksmart.com>) calls itself a "global leader in Internet search infrastructure, building locally relevant, culturally sensitive Web directories for 30

Advanced Search Language Display & Filtering Options Search Tips

Google "Ultimate Frisbee"

Google Search

Google results 1-10 of about 72,100 for "Ultimate Frisbee" Search took 0.30 seconds

Category Sports > Flying Discs > Ultimate Frisbee > College

Ultimate Frisbee Sites

- Ultimate Magazine Jon Hop's Ultimate Frisbee Photographs
- Copies Ultimate in NJ The History of the Disc Frisbee Patent
- www.prioraction.edu/~dennis/ultimate.html - 32k - CACHED - Similar pages

MUFA Madison Ultimate Frisbee Association

- Contact Email Web Site Madison Ultimate David "Chigger" Imperia/ig@students.wisc.edu <http://www.ultimate.edu/~mufu/>
- www.mufa.org/ - 11k - CACHED - Similar pages

What is Ultimate Frisbee?

- What is Ultimate Frisbee? Home Ultimate Frisbee
- Disc Sports AFDA Admin Ultimate frisbee is a fast free-flowing.
- www.afda.com/ultimate.htm - 6k - CACHED - Similar pages

When Google returns a list of sites that match your query, it will also suggest related categories in its directory of Web sites.

Eddie Bauer CLEARANCE

Save 20-60% The season's lowest prices!

Question: "Where can I go for information about Jewish Feminist hermeneutics?"

Feminist Biblical Hermeneutics: A Fad of Theoretical Nerve

J.D.H. Amador

Religious hermeneutics explores the issue of interpretation of the Bible by developing and critiquing the various theories of literature and communication that inform the models and methods employed by biblical scholarship in its analysis of the text. Its interest and focus is on the generation of "meaning" of the biblical text and the roles played by method, text and interpreter in the production of meaning. In recent years, we have witnessed a tremendous variety of theoretical reflections, each of which concentrates on one or more of the factors that are present in every act of reading: 1) "Audience" implied author, atmosphere, god as co-author, 2) "Text" syntax, poetics, narratology, deep grammar, canonical criticism and intertextuality, 3) "Context" historical, social, cultural, political, economic, gender, theological at work in its production or as work in its reception, whether ancient or modern, and 4) "Reader" implied reader, reconstructed historical audience, modern "actual" reader. In spite of

Click here to continue browsing

webhelp.com

Wallace: The search is on.

Carole: Okay okay...!

Wallace: I am searching for more information.

Carole: The bibliographic citations are rather old and the scholars are for the most part not Jewish.

Wallace: One moment and I will search for additional information.

Respond and click the "Send" button

Send End Call

Webhelp.com uses human search experts to direct Web surfers to useful sites.

directories." The company also provides Web directory services to dozens of popular Internet portals, including Microsoft MSN, AltaVista, and Excite@Home. Its directory of more than 2 million Web sites is organized into more than 200,000 categories to facilitate Web surfing.

When you visit the LookSmart Web site to take direct advantage of its search capabilities, it provides the usual keyword search and directory services, plus an interactive search service known as LookSmart Live!. This service relies on an interactive community of users helping each other to solve search problems. Not only can you ask a question and have it answered, you can also discuss topics of interest by commenting on particular answers.

To ask or answer questions in the LookSmart Live! community, you must sign up to become a registered member (it's free). Members who answer questions earn special

ClickMiles for helping others locate the information they need. Whenever you answer a question, the person who asks the question can rate your answer (Excellent = 3, Helpful = 2, Didn't help me = 1). To monitor your performance, LookSmart tracks the ratings you receive. After you answer your first 10 questions on LookSmart Live!, a Click Rewards account is opened for you automatically and ClickMiles are then automatically deposited in the account.

You receive 100 ClickMiles for every 10 questions you answer. ClickMiles can be redeemed as frequent flier miles on 10 major airlines, or can be used for discounts on hotel stays, rental cars, and products purchased from Banana Republic, Disney, Barnes & Noble, and other e-commerce sites.

Ask Jeeves hosts a similar service called Answer Point Enthusiast, rewarding those who answer questions. However, information providers do not receive any ClickMile rewards. Instead, they are provided with a Web page featuring their pictures, brief biographies, information about how many questions they've answered, and the average rating their questions have received.

Oingo: Meaning Based Search

Oingo (<http://www.oingo.com>) is primarily a language-independent database designed to search the Web's more than 800 million pages for relevant meanings rather than specific text. Oingo applies its patented meaning-based search technology to Netscape's Open Directory database. It looks for relevant Web pages by meaning and word relationships in addition to literal text strings. To do this, Oingo draws information from the Oingo Lexicon, a huge data set of more than 250,000 words and interconnected meanings created by both editors and automated software.

Instead of merely indexing words appearing in Web-based documents, Oingo conducts its

searches within "semantic space." In other words, it allows users to look for information that is close in meaning to the target search terms. As a result, Oingo is likely to locate Web sites with matching content but no matches for keyword search terms, while eliminating Web sites containing exact text matches but no relevant contextual meaning.

First, Oingo analyzes the individual search terms a user requests by comparing one term against another to identify possible meanings. Next, it generates a list of sites based on probability of relevance. Since some words can have several meanings, Oingo lets the user specify the intended meaning. Users confirm or reject various meanings by selecting from a list of possibilities generated by the first-pass search. This produces increasingly refined searches.

You can begin an Oingo search in one of two ways. First, enter a keyword term (or phrase) in the search box at the top of the Oingo.com home page, and then click the Search button. Oingo will present a series of meanings for your query. Click the check box next to the meaning that interests you, then press the Search for Selected Meanings button. In a few seconds, Oingo returns a list of the most relevant Web site links. Follow the prompts to narrow the search. Alternately, click one of the 15 topics in the Oingo Directory. Choices include Arts, Business, Computers, Health, Reference, Science, Shopping, Sports, and World.

If you click a Directory topic, for instance, Business, Oingo presents a screen with links to more specific business-related topics grouped by relevance into three sections, according to whether they are strong, medium or weak hits. On the Business page, the strong section

**According to
BrightPlanet,
there are more
than 100,000
"hidden"
Web sites—
nearly
550 billion
individual
documents—that
search engines
can't reach.**

consists of topics ranging from Advice to Venture Capital. Medium section topics range from Accounting to Real Estate. Weak section topics range from Agriculture/Forestry to Transportation. Clicking any one of these topics narrows the search even more, taking you to another page with topic-specific Web categories or links to Web sites.

At any time in the search process, you can bypass the topical search by entering a new search term in the Search box at the top of the screen. You can also click the Top link in the More General Topics area of the page to widen the search.

■ **Revealing Hidden Content.** The Web is a reservoir of both known and hidden content. According to BrightPlanet's (<http://www.brightplanet.com>) calculations, there are more than 100,000 "deep" (hidden)

Web sites (nearly 550 billion individual documents) residing in searchable databases

BrightPlanet claims that its LexiBot linguistics-based search agent can get beneath the Web's surface using directed queries. To see what LexiBot can do, download the Beta version of this search technology from LexiBot.com (<http://www.lexibot.com>) and try it free for 30 days. You can also take advantage of BrightPlanet's surface search technology without actually using the LexiBot search agent if you visit BrightPlanet's CompletePlanet search engine Web site (<http://www.completeplanet.com>).

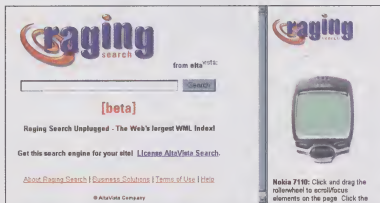
CompletePlanet offers two search technologies. It provides a mega-database containing more than 19,000 search sites organized into a "browse tree" consisting of more than 4,000 subject headings. The tree structure at the site functions like other Web directories, enabling you to navigate to increasingly more specific information areas as you browse. However, unlike other directories relying on human editors to place sites, CompletePlanet uses proprietary computational linguistics techniques and learned decision rules to place searchable sites within categories. Human editors review the categorization scheme to discover additional decision rules.

In addition to a browse tree, CompletePlanet lets you search for information by entering a natural language question or keyword(s) search phrase in its search edit box at the top of the page. The search engine allows you to qualify your searches with standard Boolean operators (AND, OR, and NOT) plus advanced Boolean Operators (NEAR, BEFORE, and AFTER). Boolean queries can also use parentheses (the innermost pair of parentheses is evaluated first). Placing a phrase within quotation marks directs the engine to look for that specific text string.

Search hits receive a popularity rating based on how frequently other users select the site from the search results. The highest popularity

rating, four, indicates that the site is in the top 4% of all sites on CompletePlanet. [E]

by Carol S. Holzberg, Ph.D.



The Beta version of the Raging Search Web tool, which has an index of 350 million Web pages, is available for download now.

that can only be mined by direct query. The content of these Web pages is not indexable by conventional search engines because their data constantly changes. Because users lack the tools to query them directly, these pages remain largely hidden from view.

Natural Language Web Sites

The End Of Search Engine Gibberish?

Web sites and search engines increasingly tout their ability to understand "natural language" questions. Proponents claim the technology makes the Internet more user-friendly and helps you find the information you want more easily. But what does it really mean? And what's so natural about it? The rudimentary definition of "natural language" is a language that is written and/or spoken by humans. It is language that has a history and has evolved over time. The opposite of a natural language would be an artificial language, one of those jargon-filled creations used to program or communicate with computers, such as C or Visual Basic. Computer languages like these have been constructed purposefully, with no real natural evolution involved. In other words, natural language is just plain ol' English, Spanish, Chinese, German, or any one of the other ways humans teach their kids to talk.

Although it would seem on the surface that computers operate with some natural language ability, they really don't. Natural language understanding (also called natural language processing) is the computer's ability to understand and generate human's natural language. It is something many researchers strive for, but it is one of the most complex problems of the computer age. Human languages are filled with exceptions to the rule, idioms, slang, and multiple meanings for the same word, not to mention the effect context creates. If that weren't the case, it would be easier for us all to be multilingual.

■ **How It's Different.** The traditional method of interacting with search engines and

other Web sites that require user input is the Boolean method. With a Boolean search, the user enters operator words like "and," "or," and "not," along with the appropriate keywords, in order to help narrow the Web field and increase the accuracy of the search results. Although an advanced Boolean search can be quite precise, it takes experience with a particular system to



understand the ins and outs of the local Boolean parameters. Search engines and other Web sites that use natural language processing encourage users to type their questions into search entry windows with the same phrasing they might use if they were asking their local reference librarian. For example, a person interested in becoming a United States citizen might type "How do I become a United States citizen?" for a natural language search, as opposed to "United States AND citizenship" for a regular Boolean search.

■ **How It Works.** Before the search engine returns Web sites or Web pages that contain the requested information, the computers

behind the curtain must perform multiple tasks in a matter of seconds. Unlike Boolean searches, where the computers rapidly search the Internet for content matching keywords, such as "United States" and "citizenship," natural language processing requires several intermediate steps.

When the user types "How do I become a United States citizen?" the search engine's server doesn't really understand the question and begins thinking, "Hmm. How DOES one become a U.S. citizen? Let me see..." Instead, it identifies the words and phrases semantically, isolating terms such as nouns and verbs. After identifying word types, the computer tries to sort out the relationship between them, typically disregarding common words such as "the" and "and" that exist in nearly every Web document.

Next, the computer has to make the connection between the keywords and develop a context for them. Once the computer makes a connection, it puts that connection into a formula and generates assumptions based on what it already knows. Only then does it locate the Web documents that contain those same words and phrases.

Although this sounds relatively simple, you must keep in mind the complexity of (in this case) the English language. When you type in a word with multiple meanings, such as "tank" (both a military vehicle and a reservoir for liquid), the computer has to examine the other words to figure out in which sense you're using the word.

Since many people also type in pretty vague queries, a natural language system can really be put through the wringer as it attempts to develop a context for the search. To generate the correct context, the search tools must turn the information the user inputs into pieces it understands: word matches, statistical relevance, and popular responses. These techniques evolve every day, but no one quite has a handle on it yet.

■ Ask Jeeves. The wise, all-knowing butler with a dry sense of humor is a stock character in popular culture. It's only appropriate that same personality should find life on the Web. Launched in 1997, Ask Jeeves (<http://www.ask.com>) is a virtual butler who answers the questions posed to him. He has become the most famous natural language site yet.

Jeeves is well-known for finding the answers to questions Internet users ask on a regular basis, such as "Why is the sky blue?" There's a reason Jeeves seems able to ponder the imponderables: Ask Jeeves employees actually spend time generating commonly-asked questions, or questions of interest, and then work to supply correct answers.

Although Jeeves is advertised as the directory for natural-language questions, his talents really lie in saving up all these questions. After analyzing a new question both for meaning and for context as described above, Jeeves first turns to his own databank of questions, made up of those submitted by both the Ask Jeeves

employees and those asked by millions of Internet users.

Ask Jeeves then returns not merely answers, but more refined questions related to your query for which he knows the answer. Some of his questions contain drop-down lists you can use to select appropriate criteria. Jeeves also isn't shy about requesting further information by way of a follow-up question.

If one of the returned questions seems to be getting at the same thing you just asked, click on the Ask button next to it to view the answer. The Web page containing the answer

opens in your browser. If the information you need isn't contained therein, hit the back arrow on your browser and try one of the other

results Jeeves has prepared for you.

Besides perusing his own knowledge base, Jeeves also sends your question to several other Internet search engines, including AltaVista and Infoseek, for

more options. Jeeves removes duplicate hits and delivers the results in a separate section, found below his own answer options.

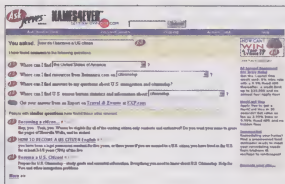
These links are accompanied by little orange people icons, which represent how useful previous searchers found the site in satisfying similar search requests. The higher the number of little orange guys, the more relevant the Web site.

For instance, when a user types in "How do I become a United States citizen?" Jeeves looks through his own virtual memory and finds four questions that may or may not hold the answer to this question. The first one, "Where can I find the United States of America?" links to an Internet mapping site and clearly is not useful in terms of this question. The second question, "Where can I find resources from Britannica.com on citizenship?" provides only definitions, so it isn't exactly helpful either. The third question hits the jackpot, however, and links the United States Immigration and Naturalization Service Web site.

On our sample question, the additional hits from Ask Jeeves' query of search engines were of little help and were appropriately marked with one or zero orange men.

Jeeves does his best work with questions based on fact. So if you're asking "What is the meaning of life?" (and many have, even to Jeeves) you're not likely to get a satisfactory answer. The Information Age still doesn't have all the information.

■ Search Engines. Several other search engines bill themselves as capable of handling natural-language queries, but this can



The Ask Jeeves Web site offers several follow-up questions based on the question you pose.

X Marks The Spot

Imagine how much time could be saved searching if we could simultaneously thumb through traditional reference books and search the Web for the answers we seek. KCSL, the developer of X-Portal, tries to deliver just that combination of information.

X-Portal, a Windows tool that works within Microsoft Internet Explorer, integrates a first-rate, 22-piece reference library with the vast resources of the Internet. Users need only type in their questions in plain English and the program's natural language capabilities kick in.

Among the reference works included are The American Heritage Dictionary of the English Language, The Columbia Encyclopedia, The Reader's Companion to American

History, and a variety of Barron's topic-specific dictionaries.

When you type your question in, the words are automatically spell-checked against some 400,000 unique English words and proper names found in the Reference Library. X-Portal then searches its built-in references, held in compressed format on your hard drive, and simultaneously sends the question to Internet search engines.

Before any of those Internet results are returned to you, X-Portal checks their quality and updates the search results as it makes new hits, placing the most relevant pages at the top of the list.

With its ability to interpret natural language questions, access the Internet and evaluate its content quickly,

X-Portal could give new meaning to the term "speed research."

X-Portal

KCSL
<http://www.kcsl.ca/>
X-Portal/index.html
\$39.95

System Requirements:

- Windows 9x/NT
- Pentium 90 or higher
- 200MB or more free hard drive space
- 24MB RAM (32MB or more recommended)
- CD-ROM drive
- 14.4 Kbps or faster modem and an Internet connection
- Internet Explorer 4.01 or higher is required, although, version 5 is included. If it is not already installed on your computer, an additional 20MB of hard drive space is required.

be somewhat misleading. Although a search engine may be able to read a plain English query, it often looks at the words alone and all but ignores context. Such a search engine typically dispenses with words that are common to most documents—these are often called “stop” words—and locates documents containing the key words.

For example, if you’re looking for an answer to “How do I become a U.S. citizen?” most search engines likely will dispense with everything except “become,” “U.S.,” and “citizen.” Typically the engine returns results based on many factors, including proximity of the words to each other in a particular document, the number of times they appear, and whether they are an exact match. Context doesn’t really enter into it. As discussed

above, context is something that computers have difficulty deciphering.

The result is that these searches end up being run as basic Boolean searches, and not very well constructed ones at that. This means you’ve probably gained nothing by phrasing your question in plain language.

For instance, the popular AltaVista search engine (<http://www.altavista.com>) offers natural-language search capabilities and does an OK job of it, but it is not nearly as efficient as Ask Jeeves for popular questions. When asked “How do I become a United States citizen?” AltaVista returned 10 hits on the first page, several of which dealt with the pros and cons of becoming a U.S. citizen. However, none of the hits on either of the first few

pages liked to the INS site, which actually has a page called How Do I...?

Better hits can be found at places like AltaVista by dispensing with the natural language and tweaking the query. Typing in “To become a U.S. citizen” results in hits that include local government pages on immigration and naturalization, as well as tips to make the process run more smoothly. Still, the INS agency page does not surface within these results. The problem?

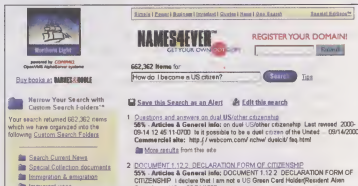
INS calls the process “naturalization” and provides a hyperlink under “citizenship.” These are not the key words AltaVista is looking for.

Northern Light (<http://www.northernlight.com>) is another search engine that advertises a natural language capability. Although it is a relative newcomer on the search engine block, the World Wide Web site is gaining prominence as a useful and easy to use Internet tool. Still, when we asked the same plain-English question “How do I become a United States citizen?” Northern Light did only marginally better than AltaVista. The INS information returned on the first page of results did not address the specific question. The most relevant information came from an immigration lawyer’s business Web page.

Business Tools. If you want to try your hand at building your own natural-language search site or adding a natural language capability to your current business site, a growing roster of companies is ready to help out. For example, Answers.com (<http://www.answers.com>) provides online customer service tools that help users find what they’re looking for on your site 24 hours a day. In practice, the system works something like Ask Jeeves. The company helps you

Tips For Posing A Natural Language Question

- Be flexible. Type in your question and see what comes back. If nothing works, refine your question.
- Give your search some context. Be specific when possible. Instead of typing “How do I become a citizen?” include “United States” before citizen to filter out the requirements of other countries for their immigrants.
- Use capitalization where necessary. This too helps give context. Some search tools are case-sensitive, and this helps you get the most relevant returns on your question.
- Avoid slang. Computers have enough difficulty discerning meaning from context as it is. Using informal language only complicates matters.
- Be judicious. Don’t add irrelevant adjectives or other language.
- Look on the second page. Sometimes the best answers to your questions aren’t found in the first page of search results, yet the bulk of Internet users neglect to look beyond it.
- Natural language queries may best help you narrow the topic so you can better utilize traditional search engines. Don’t be afraid to go back to the beginning: Boolean.



Northern Light is one of a number of search engines able to understand natural-language questions. Some questions yield better results than others.

create a database of FAQs to match up to common incoming customer queries.

Other companies to consider if you’re looking to “natural up” a Web site include KiwiLogic (<http://www.kiwilogic.com>), home of Linguabot software that can put an actual face on top of the search engine to make it appear as though a real person is answering questions; iPhrase (<http://www.iphrase.com>); ProfessorQ.com (<http://www.professorq.com>); and Easyask (<http://www.easysask.com>).

The Road Ahead. Even with the technology behind natural language search engines advancing by leaps and bounds, computers still have a journey to get to the point where they really understand what users are saying to them. Natural language questioning brings us a step closer to the goal, but we’re still quite a long way from getting instant, relevant, and correct answers from computers that know exactly what we’re talking about. **LE**

by Anne Sleyer Phelps

Live Customer Assistance

Live Chat Tools Can Turn Browsers Into Buyers



live assistance on the Web. Jill Frankle, a senior analyst with Gomez.com (<http://www.gomez.com>), an e-commerce research company, says that many shoppers aren't even aware that such assistance is available. "It takes customers time to embrace a new concept," Frankle says. "Most would rather find information on their own, or just pick up the phone."

According to an online poll Gomez.com is conducting which asks visitors,

"Out of the following, which is the tool that you would most like to have on an online retail site?" only 11.5% of users surveyed greatly value live customer assistance. By comparison, 40.5% chose real time inventory, 35.9% chose order tracking, while personal account area netted 7.6% of the vote and online wish lists got 4.6%. (The poll is ongoing. These figures are based on 260 responses.)

Standard e-mail remains the most popular form of customer assistance that Web sites offer, followed by 24/7 phone assistance. Since live chat is currently the most popular form of live customer service, we want to introduce you to companies that provide this technology and some Web sites that employ it.

Usually, Internet users don't pay much attention to the technology that powers the Web, or the companies that develop that

technology. After all, does it really matter to you who the "dot" in ".dot com" is?

We won't burden you with a bunch of techno-speak explaining exactly how live chat works. But it won't hurt you to learn a little something about the companies that have developed the software and, in some cases, provide the live personnel for live chat features. In fact, when you use a Web site's live chat feature, you may very well see the name of the company that is providing the service.

■ **LiveAssistance.** One company that sells live chat customer service programs to e-tailers is LiveAssistance (<http://www.liveassistance.com>), based in Virginia. It links its service directly from the client's site and works with any "off-the-shelf browser" and America Online. Thus, users don't have to first download a special program in order to use the live chat feature on the client Web sites. In addition to powering the live chat, LiveAssistance can provide its clients with telephone operators, either to take excess calls during busy hours or to handle all calls during non-traditional business hours—an ideal solution for small online businesses.

You may wonder how a staff of customer service reps in Virginia can know so much about the products and services of diverse e-tailers. Each client provides LiveAssistance with a knowledge base from which the customer service reps can find and send answers. The clients can update the knowledge base at any time. Frequently asked questions can be answered with just a touch of a button, and video and audio files can be sent to customers just as easily.

You may also think that the live chat tool of all the clients of LiveAssistance would look the same. But again, the service is customized for each client. LiveAssistance can configure the chat interface to match the appearance of the client's Web site, plus include company logos.

One of the client sites we visited was ValuSport (<http://www.valusport.com>), a Colorado-based vendor of vitamin supplements, fitness and sports equipment, and health and beauty products. On the home page, click the Contact Us link, and then scroll down the following page to find the Contact Information section. You are invited to interact live with ValuSport's "personal trainers" by entering your name, e-mail address, and question/comment, then clicking the Chat Live Now button.

What qualifies as good customer assistance is a subjective thing. Upon entering a store, some customers expect to be approached by a salesclerk almost immediately; others don't want to be bothered at all; and many just want someone within sight or earshot if they have a question. The same is true on the Web—some customers demand readily available help, while others would rather find a product or information themselves.

When it comes to customer service, e-tailers have been at a disadvantage compared with their brick-and-mortar competition. A FAQ sheet or e-mail response simply can't compete with a live, friendly face. However, a growing number of sites are incorporating some sort of live assistance, most notably live chat.

■ **Embracing A New Concept.** Up to this point, there hasn't been a great demand for

We found the tool easy to use, although at one visit we were informed that no customer service reps were available to help us at that moment. We were also surprised that ValuSport didn't promote this tool better. It doesn't include a link to live chat on the home page. So, when visiting a Web site, don't assume that it doesn't offer live chat just because you don't see an obvious link. Find an About Us, Contact Us, or Customer Service link and see if live chat is tucked in that section of the site.

Another LiveAssistance client is CendantMortgage.com (<http://www.cendantmortgage.com>). A Chat Live Online link on the home page gives you easy access

to the site's live chat tool. To begin chatting, type in your name and e-mail address, and then click the Enter Chat button. After about a minute, you'll be connected to an operator; at this point you need to type in your question and press ENTER. We received quick service—which is limited to Monday through Friday, 8:30 a.m. to 10 p.m. EST—but the operator, Nicola, gave us a toll-free number to call to get a more specific answer to our query about the availability of fixed-term mortgages.

■ **LivePerson.** Based in New York City, LivePerson (<http://www.liveperson.com>) is another company that equips Web sites with live chat tools. LivePerson employs

Application Service Provider (ASP) technology, which works through a network of high-speed service clusters. As with LiveAssistance, Web site users do not need to download anything to use LivePerson's live chat, but they can view video images, other Web pages, or links sent to them via push technology, whereby information is "pushed," or sent, to users without their needing to request it. LivePerson operators also use a knowledge base prepared by their clients to answer their customers' questions.

The LivePerson Customer Interaction Suite includes live chat, an FAQ tool, an e-mail tool, and other professional services. One of the distinctive aspects that LivePerson advertises

Get Expert Advice

It's human nature to want to give advice, but we want to accept it on our own terms. A number of sites on the Web let you selectively hunt for experts to answer your question, give advice, or serve as a pro for hire. Here are several good expert sites.

EXP.com

<http://www.exp.com>
EXP.com is a new site that links users with experts in a variety of fields who can give advice or complete projects. Registering with and using the site is free, and then you negotiate a fee with the expert who agrees to offer advice or handle your proposal.

When you find an expert, you can contact him or her by phone, live chat, or e-mail. If you do not find an expert in the field pertaining to your question/project, use the Public Questions link to post your query, where all experts can read it.

ExpertCentral.com

<http://www.expertcentral.com>
Since its inception in 1998, ExpertCentral.com has

remained a completely free service—it costs nothing to get advice, and experts who receive business because of their exposure on this site keep all their profits.

Once you find an expert to your liking, click the Ask A Question link, enter your name and e-mail address, and send your question. You'll know by

users have rated the expert first.

Guru.com

<http://www.guru.com>
More than 320,000 gurus are waiting for your business at Guru.com. It's a friendly site for experts—you pay a flat fee of \$50 for finding help, but the guru don't pay anything. It

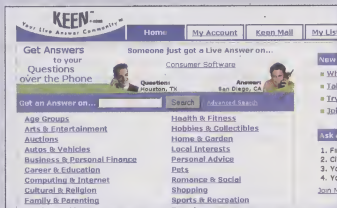
Inforocket.com

<http://www.inforocket.com>
At this person-to-person auction site, those looking for answers and those with the answers can hook up easily. You and the expert negotiate the price; the latter pays a 20% fee to Inforocket.com. But you pay only for answers that meet your satisfaction.

Keen.com

<http://www.keen.com>
This "Live Answer Community" lives up to its name. After finding an expert, click the Call Now icon, and Keen.com will connect you over the phone. On the Web site you'll find instructions for placing the call if your phone line is also used for your Internet connection. All phone calls are private, and your personal information, including your phone number, is not given to anyone, including the expert.

An expert may also be available through a recorded phone message or have written material for sale. Both live and recorded phone calls will cost you a per-minute fee.



Find an expert at Keen.com, and the site will place the phone call for you.

reading the expert's profile how he may be able to help you, and how quickly he'll respond. (The Web site guarantees you'll receive an answer within two to three days.) Be sure to read how other ExpertCentral.com

costs nothing to register at the site, and the Post a Gig and Find a Guru links on the home page put you on the fast track to finding help. Or, gurus may come looking for you through the Find A Gig link.

about its live chat tool is that its customer service operators can interact with as many as four customers at the same time.

LivePerson clients number more than 800

Web sites, including Harris Interactive (<http://www.harrisinteractive.com>), a research firm, and iQVC.com (<http://www.iqvc.com>), the Internet side of cable channel retailer QVC.

We visited a LivePerson client, firstsource.com (<http://www.firstsource.com>), a one-stop e-tailer based in Santa Ana, Calif., that sells computer hardware and software, office supplies and equipment, consulting and Internet services, and more. We were pleased to see that firstsource.com has placed a link to what it calls "livehelp" right at the top of the home page, near its toll-free phone number.

We clicked the livehelp link and were prompted to enter a first name. We clicked Start, and then waited a few moments to be connected to a customer service rep. Once connected, we were informed that we would be chatting with a rep named Michael. We entered our question and clicked the Send button. It took Michael just a few seconds to respond. When we were finished with our questions, we clicked the Hang Up button to terminate the session.

At the end of the chat time, we were given the option to complete a short survey about the quality of the service, both with the customer service representative and the Web site in general.

We appreciated the fact that the survey was optional, and the fact that anyone can use the live chat tool without registering with the site first. In fact, although the information you may be asked to enter when using a live chat tool varies from site to site, most let the user remain relatively anonymous.

■ **WebLine.** In 1999, Cisco Systems purchased WebLine Communications, which produces customer interaction management software for Web-based businesses. The Web collaboration tool it makes allows multiple parties to work together over the Internet,

simultaneously sharing Web pages, among other benefits.

A good example of this technology in action is found at the Lands' End Web site (<http://www.landsend.com>). On the home page, click Help, then the Lands' End Live button.

You have two ways to communicate with a Lands' End customer service rep. The first is by phone, which you might select if you have a separate phone line dedicated for your Internet connection or a connection that allows simultaneous

Internet and telephone use, such as DSL. Type in your name and phone number, and the representative will call you. Then, you can speak to one another while you view Web pages together.

The second option is a live chat feature, which we chose. The first time you attempt this, you will be required to install a WebLine program and applet. Once that's installed and you're connected to the customer service agent—which takes a minute or two—you enter your question in a text box and hit the Post Message button. The running text of your conversation will appear on screen. To end the chat session, click Close.

■ **Get Help.** Not every Web site that offers live customer service is selling products. Many are service oriented, such as Webhelp.com (<http://www.webhelp.com>), a Toronto-based site that is devoted to helping its users find the information they need on the Web from real people in real time—like a human search engine.

Anywhere on the site, you can click a Get Webhelp button to connect to a "Web Wizard," a real person who will get

information for you based on his or her knowledge, not just a keyword search of other Web sites. Like the customer service reps working for LiveAssistance and LivePerson clients, the wizards at Webhelp will interact with you in a live chat format. The difference, however, is that these wizards won't answer your question directly, but will steer you to a Web site where you can find the information you need.

Another important difference between Webhelp and the e-tailors mentioned above is that you must first register with the site before you can chat with the wizards. You can request a free trial, in which you get five Webhelp "credits" to use at the express, or priority, level of service. The express level costs \$9.99 per month for unlimited help. (Or, you can purchase Webhelp credits in packages of 10 for \$9.99 or for 99 cents each.)

Anyone can use the basic level of service at no charge. (To learn more about other service-oriented Web sites, see the sidebar "Get Expert Advice.")

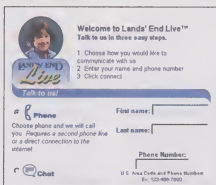
■ **Sales At Stake.** Researchers estimate that online spending may hit \$1 trillion by 2002. With that much at stake, e-tailors must be willing to offer users the tools that will turn them into customers. Without live assistance, Web sites may be missing sales to some potential customers and increased sales from current online shoppers.

According to NFO Interactive, a division of the marketing research firm NFO Worldwide, nearly 35% of online shoppers in a 1999 survey said they would "buy more if they could interact real time with a salesperson from an e-commerce site." Furthermore, 13.7% of surveyed Web users who had not shopped online said they

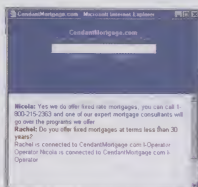
would make purchases on the Internet if they could "speak directly with a customer service representative."

So, look for more Web sites, especially those that sell tangible merchandise, like Lands' End, to offer live customer assistance. As we've demonstrated, it's easy to use and usually free. **ES**

by Rachel Derowitz



The live chat tool at Lands' End gives you the option of talking with a customer service rep while viewing Web pages together.



Even with a live chat tool, some Web sites encourage the use of their toll-free phone number to receive specific information.

Form Filler Programs

Leave The Paperwork To Your Software

The wonders of the Internet are apparent. Unfortunately, these marvels are also accompanied by a few annoyances. One of the common aggravations is being constantly asked for your username and password. Worse yet is retyping your name, address, credit card, and other information at e-commerce sites.

The Programs. You can avoid these hassles by using software programs that remember usernames and passwords in order to automatically fill out forms. As people flock to the Internet and e-commerce applications, consumer demand for such form filler features grows, and so does the power of the programs. A year ago there were several form fillers available. Most were difficult to set up and, once successfully set up, were not very robust. What a difference a year makes. The number of this type of program has blossomed, and their variety ranges from very simple to complex.

DropIt. DropIt, a shareware program available for download at <http://www.spinnerbaker.com>, is simple yet powerful. Type your pertinent information into the program. When the need arises, simply start DropIt and drag the relevant information from the DropIt list box onto the form. Use DropIt for any information that you may want to insert. DropIt's main window always stays on top of the form, to be accessed when you need it. Minimizing the main view window will insert DropIt into the system tray for future use. DropIt is also

available in a Pro version for \$25 with a 30-day trial. For online shopping, the Pro version lets you store sensitive data in an encrypted, password-protected form and adds several features, such as "undo" and the ability to send text with a single click instead of dragging and dropping.

TypeItIn. For another simple, yet possibly even more useful, program, try TypeItIn by Paul P.M. Beuger. After downloading the program at <http://www.wavget.com/typeit> in.html, the setup is easy. TypeItIn is a little like having your own secretary. The program creates buttons that, when you press them, will

evaluate for 30 days. To purchase, it costs \$17.50 with all future upgrades free to registered users.

Gator. Gator, another popular form filler, is a free download at <http://www.gator.com>. When you type in a new password at any site, Gator's login helper pops up asking if you want the Gator program to remember your username and password. Like the previous programs, you can drag and drop your information from the Gator screen. Gator, however, stores additional information in a more useful format employing familiar windows-type tabs and drop-down boxes. Gator allows you to create several different user profiles. Each profile has room for three different sets of information (Home, Work, and Other). On many sites, Gator allows you to fill out the entire form with one click of the mouse. What a great feature. The speed at which this happens is sure to WOW you the first time you try it. This auto-fill works at quite a few Web sites and worked without a glitch at all those sites we tried. Gator's constant pop-up advertising offering discount coupons can quickly become bothersome.

Internet Explorer 5.0.

If you would like to try a form filler, you may not even have to download one. Internet Explorer 5.0 (or higher) users will find that Microsoft has included several form helpers right in their browser. First, there is an auto-complete option. When you type in a URL, an entry on a form, or a username or password, auto-complete will list possible matches from entries previously typed.

You can use the mouse or the arrow keys to scroll down to the entry of your choice. Clicking the mouse or pressing the ENTER key will insert the chosen entry into the current box.

Choose Tools from the IE toolbar, and then choose Internet Options. Click the Content tab, and you will see the screen that you can use to change the Autocomplete settings. Click My Profile to fill in your personal profile, and click Wallet to enter your credit card information into Microsoft's Wallet program. Both the profile and the wallet will automatically fill out forms when you are on a site that is Microsoft



type in any information you want into any application. You can use TypeItIn to enter usernames and passwords or to fill out forms on the Internet. It's also useful for any application where you frequently type in the same thing. The Professional version employs an easy to use macro-type interface. TypeItIn is like a more powerful Windows Clipboard. Unlike Clip-board, the buttons you set up are always available. The free version of TypeItIn is accompanied by banner advertising. The more powerful Professional version is free to

Wallet enabled. This feature works well on sites that use this technology, but, obviously, is not very useful on other sites.



Gator's pop-up window pops up when you need it.

with a single picture-based master password. You choose a graphical interface and then create a unique password by moving objects in that interface. Choices include a hand of cards, a periodic table of elements, a kitchen where you can cook a meal, and a bedroom where you can hide items such as money or jewelry. For example, if you drag a ring into the safe, next put the money under the bed, and then put the camera into the bureau drawer, you have created a unique picture-based password. When you visit a new Web site that requires entering information like a username and password, v-GO will pop up a window asking if you would like to create a v-GO logon. The Passlogix software can be used as a digital wallet to store, encrypt, and transmit commonly used information such as credit card numbers. The single picture-based master password you have created opens all your online Web sites and accounts. Log on once and jump from Web site to Web site and almost everyone will know your name. Like Gator, v-GO will fill out forms and allow you to enter multiple profiles and credit cards. v-GO also takes form filling one step farther by creating a transaction history that includes logons, registrations, and purchases.

Form Filler Function. If you fill out a lot of forms or have multiple passwords (who doesn't?), all of these form filler programs can be extremely useful, but none of them is perfect. All work better at some

sites than others. Our testing showed that none works correctly on all sites. Unfortunately, no single service has garnered enough Web site affiliates or partners to make its software effective at a majority of Web sites. Most of these form filler programs work with what is called a single sign-on. Banking and financial sites that require multiple or nested logons

will stymie the auto-fill offered by many form filler programs. Yet even at such sites that do not accept the auto-fill, you can still use the drag and drop features to save typing time.

Security Issues.

When dealing with personal information, security rightly becomes an issue. Currently, there is no universal standard for safeguarding personal information online. Each of the programs mentioned has its own level of encryption and security. For instance, Gator says that only your first name, e-mail address, ZIP code, and country information are sent to Gator.com. All other personal data is stored on your computer. However a little farther down in its license agreement, Gator admits that it collects information on your Web usage for third party promotions.

While most folks skip over the license agreements and privacy disclosures when installing new programs, this may not be a good idea when dealing with programs that are entrusted with your personal information. Reading the fine print is essential when registering with programs of this type. It is obvious that choosing the right software should be based on your needs as well as the amount of privacy

that you are willing to trade for convenience and/or discounts.

The Future. Although the computer world is currently struggling with security and privacy issues, as standards are implemented, form filler and e-wallet programs will no doubt gain in popularity. Micro-

soft and others are salivating at the idea of becoming full-fledged identity brokers. In the future, each of us will have a digital ID, and there will also be many large entities vying to be the universal registration agent for these digital IDs.

From the

end-user's perspective, however, you can expect only good news. The most plausible product is a hardware/software combination. Several are already appearing. American Express has recently introduced a credit card called Blue with Smart Chip technology. Blue comes with a smart reader that attaches to your computer. Insert the Blue card and an AmEx-enabled Web site will transmit all of your information in an encrypted state. The drawback here is that not all computers have smart card readers. If smart card readers become more commonplace, this could be an intriguing answer to the form/security dilemma.

Biometric security devices that read fingerprints and computers that recognize individuals by their voices or eyes could make passwords obsolete. The computer will uniquely identify us biometrically when we log on. And with voice recognition software becoming more powerful, in the near future we will probably be able to fill out forms simply by speaking. Then we will simply tell the computer what to purchase, which credit card to use, and where to ship the merchandise. All without a security worry.

Ah, those will be the days! [E]

by Sandy Berger



v-GO lets you create an all purpose graphical password.



Drogit stores all the info you'll ever need for online forms.

Voice Portals

You Can Hear Clearly Now



Automated telephone operators are one of the few technological advances that nearly everyone reacts to with disgust, but what if that robotic voice on the other end of the line was actually telling you something you wanted to hear? What if, instead of guiding you through a convoluted menu of customer support options, it was giving you quick access to stock quotes, news, address-to-address directions, or even the Internet? That's what voice portals, or voice-activated networks, are all about. They use advanced technology to understand and respond to speech commands and deliver either pre-recorded or dynamic content using speech over a standard telephone.

Voice portals are not an entirely new idea; phone companies have been providing information hotlines for years that locals can dial into get movie times, weather reports, and other data. Unlike the time and temperature calls of old, the new services have voice-activated

navigation systems, can be accessed from anywhere, and have a dynamic nature to their content. Many of these services read data from an ever-changing database or directly from the Internet, so you can get the same up-to-the-minute updates Web users enjoy without having a computer.

■ **What Has Changed?** Voice portal technology has a long way to go before it's perfect, but many improvements have been made in key areas in the last year. One of the biggest obstacles,

the speech recognition software that translates your voice into commands the computer can use, is surprisingly accurate nowadays. Using the major voice portals, we had few problems being understood regardless of the accents we used, and mumbling seems to be the only way to stump the latest technology. Regardless, misinterpreted words are frustrating, and it will take some time before you can achieve anything close to a 100% accuracy rate.

Another problem that is soon to be a thing of the past is text-to-speech quality. It doesn't matter if a computer can read your e-mail to you if you can't understand a word it's saying, but the harsh metallic voices of the past are swiftly being replaced by more natural-sounding voices. It's to the point where computers can translate or read e-mail or news stories on-the-fly yet still be wholly understood; however, computers are likely to have problems with inflection and non-standard words for years to come.

Although voice menus are getting better, they are not an ideal interface, and voice portals are harder to navigate than services that use a visual interface. Many of the voice portals available today have so many options it can be hard to remember exactly what's available. All of the services we tested give users detailed help, but having a voice read a list of options takes much longer than visually skimming a list of the same length. Users must have patience and a willingness to memorize several commands before a voice portal service can be truly useful.

Although many voice portal services are becoming more useful, the fact remains that Internet-capable telephones and other devices that can display text are much better for accessing much of the information voice portals provide. It is handier to have a printed list of driving directions rather than listen to them over the phone or to read e-mail rather than hear it read in a halting, electronic voice. There are some things voice portals just aren't good at, and those unfortunately tend to be the most useful services. Combine that with the fact that most people are still uncomfortable talking to machines, and it's easy to see why it may take some time for voice portals to really catch on.

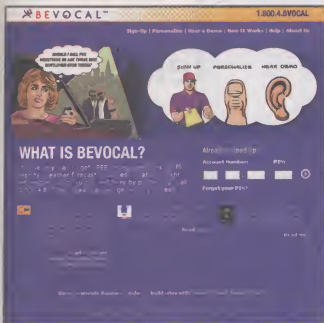
A final major stumbling block is the difficulty of fully automating a service that would be better fulfilled by humans. No matter how accurate current voice recognition technology is, humans are better at understanding what other people are saying and providing appropriate information. All of the voice portal services we've looked at were frustrating to use at one point or another simply because the computer running the show completely failed to understand a command or request that a person would have had no trouble with.

■ **Does It Work?** We tested a number of the more popular voice portals to see if they really deliver the freedom they promise. Although the technology behind all of this is still in its infancy, we were impressed by the relative quality and speed many of these services provide. Two in particular really stood out, so we gave them a thorough workout and reported the results so you'll know what to expect from the current generation of voice portals.

BeVocal

(800) 428-6225
<http://www.bevocal.com>

BeVocal's voice portal has steadily improved to become one of the better services



BeVocal's technology is among the most accurate of the voice portals we tested for recognizing spoken commands.

of its kind. It is reasonably fast, accurate, easy to use, and has a lot of advanced services that belie the fact that it is completely free. We used it to get quick stock quotes, driving directions, local weather reports, flight information, and other data.

The stock quotes are one of the service's best features. We didn't even have to memorize ticker symbols because you can retrieve quotes simply by saying a company name. We rattled off a number of company names, and the service rarely failed to zero in on exactly what we were looking for.

After hearing the current price of the stock, BeVocal.com made it easy to quickly dig up deeper levels of information. By saying, "More detail," we got a 52-week high and low, a daily high and low, and the daily volume of the stock. Best of all, once we registered at the Web site and logged into the service by saying our PIN, we were able to create a stock portfolio by saying, "Add that," when a stock quote was being read. When we said, "Portfolio," we were able to get a fast rundown of the current condition of the stocks in the portfolio without retrieving the data one stock at a time.

The Business Finder is an equally useful tool that let us find businesses close to us. We used St. Louis's airport as a starting point, and we found restaurant chains and other businesses in the area. Once we narrowed it down to a single business we were interested in, BeVocal gave us the phone number and

offered to connect us to the business (at no cost) or to give us detailed driving directions from the airport to our destination. If you opt for the directions, the service can either e-mail them to you or read the list of steps you'll need to take to get there. It's also possible to get address-to-address directions in many major U.S. cities.

Our experience with BeVocal was positive but not perfect. BeVocal doesn't read through the menus and instructions as quickly as some of the other portals we tested, making navigation cumbersome. We also discovered that some of Be-

Vocal's services, such as traffic information and driving directions, cover only a few metropolitan areas, although this situation should improve as it expands the service.

Tellme

(800) 555-8355

<http://www.tellme.com>

Tellme Networks' Tellme is another free portal that offers a plethora of services.

Although it lacks some of the more advanced features we liked about BeVocal, such as the driving directions, Tellme's scope and overall speed more than made up for the missing features. It offers extensive information, ranging from news to soap opera updates, and it adds new categories all the time. There's even an interactive blackjack game that lets you play using simple voice commands. You can't win any money playing it, of

course, but you won't need to because Tellme is free.

The blackjack and horoscope features are more entertaining than useful, but the rest of Tellme's services offer some real value, especially if you take the time to sign up for a free account before using the service. Stock quotes and portfolios are easy to access, and if there's important news regarding one of the stocks you are tracking, Tellme can read it to you.

One of Tellme's best features is its restaurant information. The company has partnered with Zagat to provide short reviews for many of the restaurants in its database, and the service can instantly connect you to a restaurant that sounds interesting so you can make a reservation. The travel category works much the same way, automatically connecting users to car rental agencies, airlines, and hotels to make a quick reservation before returning to the Tellme service. There's even a separate taxi category that makes it easy to call a cab from nearly anywhere.

Tellme lets you access information about weather conditions and forecasts for more than 30,000 U.S. cities, and if you have an account, you can establish a list of favorites—a feature that works well when you are traveling cross-country because you can enter various cities along your route onto the favorites list. In addition to the services already discussed, Tellme provides movie reviews and times, lottery information, sports news, traffic conditions (for certain cities), and the current time (for the time zone you're in when you place the call).

Perhaps the main draw of Tellme is its speed. We rarely felt like the voice "attendants" were bogging us down, and the speech recognition technology was accurate enough to make navigation a breeze. With the exception of the cheesy blackjack dealer, Tellme also has some of the best computer voices we've heard.



AOL snapped up Quack.com and will incorporate the technology the company developed to add voice-port services to its ever-expanding repertoire of services.

Tellme is certainly one of the best voice portals available, and you can't argue with the price, but there's plenty of room for improvement. The service's lack of focus makes it more cumbersome to use. After listening to a voice menu that includes several hokey categories we had little interest in, such as the horoscopes and blackjack game, we ended up wishing Tellme would have shoehorned these into a more general entertainment category that would have tightened up the main menu. We also noticed that it's only possible to connect directly to businesses that have established a relationship with Tellme, and there are relatively few that have done so at this point.

Voice Surfing. The services discussed up until now offer a lot of content that is pulled off the Internet, but there are services that let users access the entire Web through their telephones. You can follow links and move forward and backward through Web sites using voice commands, and text-to-speech software will read the pages to you.

One such service, netECHO by InternetSpeech.com (\$29.95 per month; <http://www.internetspeech.com>), is slated to be available by the time you read this. The technology employed by netECHO is capable of accessing and reading any Web page, without any special cooperation or formatting required by page designers. The service also acts as a voice portal to provide quick access to standardized data such as stock quotes and weather reports.

Dr. Emdad Khan, president and CEO of Internetspeech.com (and the inventor of netECHO), gave us a demonstration of the company's premiere product that was fairly impressive. Khan dialed into the service, accessed his e-mail account, and it read his messages to him in a very understandable, text-to-speech voice. Khan recorded his responses that could then be e-mailed as sound file attachments. (The ability to accurately and quickly process voice-to-text data is a long way off. At this point, sound files are the only viable way to send sound files if your phone doesn't have a text entry device.)

After the e-mail demonstration, Khan used netECHO to access the Internet and read pages in real-time. The beta we tested had a Popular Web Sites feature that will eventually contain a database of oft-visited Web sites. You'll be able to access them by saying the company's name instead of spelling out the entire address. For example, Khan said, "CNN," and the software navigated to CNN.com and began reading the news stories on the site's home page.

When we tested it, netECHO had some rough edges. It read straight down the source code (the data file that contains the special HTML formatting for a Web page, as well as its contents) of a page, which works better at some sites than others. When we visited Smart Computing's Web site (<http://www.smartcomputing.com>) netECHO started reading the links on the left side of the page, and it would have been a chore to navigate anywhere. Dr. Khan promises that netECHO will employ special algorithms by the time it goes live that will let it extract highlights, such as news and other large blocks of text, from a page and read those first. Regardless of what happens, we'll be curious to see how the service handles the thorny problem of efficiently navigating a complex Web site using what amounts to a linear navigation system. This is a problem all companies that wish to provide Internet access over a telephone must face.

■ The Verdict On Voice Portals. AOL (America Online) made

it clear that it has big plans for voice portal technology when it acquired Quack.com, one of the earliest voice portals. AOL will likely implement advanced voice portal technology for its customers by the time this article hits the stands. New formatting languages, such as

Tellme is one of the better voice portals we tested, with weather information available for more than 30,000 U.S. cities.

VXML (Voice Extensible Markup Language), are making it easier than ever for companies to create voice portal content that is truly useful. Considering the advances we've seen in the last few years, it shouldn't be long before the electronic voices that voice portals rely on become virtually indistinguishable from those of humans.

Voice portal technology is also perfectly suited for certain environments. For example, it is a good match for drivers who need to constantly interact with the Internet. The ability to give complex voice commands will let drivers keep their hands on the wheel, and advanced text-to-speech technology will let them keep their attention on the road while listening to their messages and news from the Web.

The real reason voice portals are here to stay is that you don't need expensive equipment to use them. If you have a telephone, you can access the services, which somewhat bridges the "digital divide" that has kept timely information out of the hands of the technological have-nots for years. The services we looked at are also a boon to mobile professionals and travelers, and things are bound to get even better as the behind-the-scenes technology is refined. [E]

by Tracy Barker

InternetSpeech.com designs voice portals that function as an ISP, letting anyone with a telephone access the Internet.



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Block Online Advertisers

Ad-Killing Programs Stop Ads & Protect Your Privacy

If you thought ad-blocking software merely blocked ads, we hope you'll think again.

Today's ad-killers help you preserve what little Internet privacy you have left. By preventing ads from downloading to your system, they keep advertisers from tracking your personal information and preferences.

Advertisements of all types, from banners to pop-up windows and graphics clutter Web sites far and wide. If you haven't noticed the congestion, then you obviously haven't spent much time online lately. Of course, these advertisements, like their counterparts in other mediums, do pay for the Internet as we know it. Yet, their sheer volume, from large commercial portals to small personal pages, drives users to find a way around them.

Much to the advertisers' chagrin, ad-killing software provides just such a relief from the bombardment. Not only do these handy programs rid users of the visual clutter; they also accelerate browsing speed by not allowing these excess items to download. Ad-blocking software works by recognizing the common characteristics of Internet ads—the shapes of the banners or the sources of the images. The software, which typically sets itself up as a proxy server on your computer, examines each Internet request and then screens images that match the given criteria. For instance, any image coming from a folder called "ads" or from "ads.doubleclick.net" would not be allowed to download. The software must stay current on the latest types of ads and advertising sources, just as your virus protection software keeps up to date on the latest viruses.

Originally, users valued ad-blocking software simply because it rid their screens of advertisements, allowing them to browse faster. Little has changed regarding the way the software works, but there's definitely been a recent shift in emphasis. Today's users value ad-blocking software for the personal privacy it affords them. Many advertisers or advertising

networks can now track Web surfers as they move around the Internet. When an ad opens on a computer, the advertisers use cookies or IP (Internet Protocol) tracking to build a profile of the user, glean his or her preferences and personal information. Since ad-blocking software prevents ads from ever reaching your computer, it also prevents advertisers from tracking your activity. The programs we found all emphasize ad removal as well as privacy protection.

■ **AdKiller.** AdKiller removes ads from Web pages by acting as a proxy server and replacing ads with a transparent image as pages download. As with the other ad-blocking programs, it not only removes annoying advertisements and graphics, it also prevents advertisers from tracking your presence on the Internet.

AdKiller uses pattern matching to identify ads and solicits your help in finding the latest ad patterns. Should an unrecognized ad or graphic pattern slip through and appear in your browser window, AdKiller asks you to report it. Simply copy the URL (universal resource locator; a Web address) and send it to AdKiller. Use the Contact form at AdKiller's Web site if you prefer to remain anonymous. AdKiller also provides regularly updated Ad Definitions for users to download. Advertisers' continual change of ad patterns necessitates frequent AdKiller updates. These definitions are stored in plain text, and instructions are included so users can add their own definitions to block images on sites they regularly visit.

After downloading and unzipping the files, AdKiller offers to automatically configure the settings for you. However, it warns that if you already use a proxy server, you'd better configure it manually. (Unless your computer is part of a private network, you probably don't have a proxy server.) As with most of the other programs, AdKiller places an icon on your Taskbar. Click the icon to open Setup within



your browser window so you can adjust various settings or Ad Definitions.

Download AdKiller 1.1 from <http://www.adkiller.com>. The shareware version is free, and the registered version costs \$15 but lacks the annoying registration reminders. All Ad Definition updates are free to those who register.

■ **AdsOff!** InterCan Tech, the maker of AdsOff!, knows its customers primarily use the software for privacy protection. That's why its latest version (2.0) offers improved filtering technology and privacy protection safeguards. AdsOff! uses FemoFast! technology to accelerate browsing speed by preventing all interactions with known ad servers. It also prevents the cookie and IP tracking that advertisers use to collect user data and monitor online browsing habits.

AdsOff! uses a universal filter that works with all Web browsers, as well as other programs such as e-mail clients that also display ads. It also incorporates cutting-edge Web parsing technology to ensure that pages maintain the correct formatting, even without the ads.

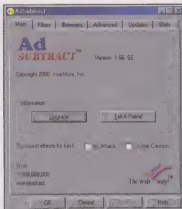
AdsOff! works with Windows 95, Windows 98, Windows NT 4.0, and Windows 2000. You can download a copy of the software from <http://intercantech.com> for a free trial, or you

can purchase it, along with one year of updates, for \$19.95. After downloading AdsOff!, following the installation instructions and restarting your computer, the AdsOff! spray can icon appears in the Windows Taskbar. AdsOff! sits inactive until you begin browsing.

Turn AdsOff! on or off, or change the settings by clicking the spray can. Use the Settings menu to control pop-up browser windows, change the way blocked ads display, or adjust the filtering strength. Changes take place immediately after you close the options screen, but you must refresh the current page in your browser window in order to view it with the new settings. AdsOff! offers many advanced features and levels of customization, but the default settings satisfy most users' needs.

■ AdSubtract. AdSubtract's maker, interMute, provides three different ad-blocking options (<http://www.adsubtract.com>). Its basic program, AdSubtract SE, is free for personal use. It blocks unwanted ads and cookies and includes optional sound effects. AdSubtract CE costs \$14.95 for a single user license, and it adds several cookie management tools. These tools permit you to see the cookies on your computer, highlight ad server/profiling cookies, and delete cookies. AdSubtract Pro, at \$29.95 for a single user license, goes one step further. It blocks annoying pop-up windows, freezes animated images for less distraction and faster browsing, blocks background music and images, and blocks "referrer" strings that track your browsing activity. All three AdSubtract programs support Win95, Win98, WinNT 4.0, Win2000, and Windows Me.

We downloaded AdSubtract SE, which, after installation, placed a small, yellow, AdSubtract icon on the Taskbar. Filtering begins immediately, but to tinker with the settings, click the AdSubtract icon. You can tell AdSubtract to filter all ads and cookies from all sites, plus you can specify sites for custom filtering. For example, you might configure AdSubtract to allow cookies from your stock



Click the AdSubtract icon on the Taskbar to open a dialog box where you can select filter or browser settings, report ads that slip through, and view statistics about how many ads AdSubtract has blocked.

trading site but disallow cookies from any other site. From within the AdSubtract dialog box, you also can report any ads that manage to sneak through the filters and see the statistics of how many ads have been cleaned from each site.

■ Ad-Terminator. Ad-Terminator from Ledgerlabs is nothing more than a simple text file of 1.90KB (kilobytes). This file sits in your WINDOWS directory and tells your computer to access Ledgerlabs' server whenever an ad is requested. A small, blank file then replaces the ad file, and because of this, your browser loads Web pages faster.

Ad-Terminator is simple to use and really isn't a program at all. Instead, it's a replacement for your Hosts file that forwards popular advertisers to an area of Ledgerlabs' Web server. Ledgerlabs also claims it will regularly add to its list of advertisers to keep it up to date.

The software, which works with Win95 and Win98, is free from <http://www.ledgerlabs.com/adterminator>. Give Ledgerlabs your e-mail address, and then look for the Ad-Terminator file to appear in your mailbox momentarily. Simply unzip the file into your WINDOWS directory, reboot the computer, and then kiss Internet ads goodbye. Ledgerlabs promises to send you regular Ad-Terminator updates as it discovers new types of ads.

■ Guidescope. Guidescope, a new program from the company of the same name, promises users faster Web surfing—about 1.5 times faster—simply by eliminating the ads. As with other ad-blocking programs, Guidescope helps you surf safer by preventing advertisers from tracking you. It further protects your privacy by blocking Web bugs and referrers. Even Guidescope never learns your personal identity.

Guidescope blocks ads through a collaborative database augmented by pattern matching. Other ad-filtering products use pattern matching alone, and if an ad doesn't match the pattern, it slips through. Guidescope keeps its ad database up to date and accurate through a Web community of users. If a new ad sneaks through undetected, use the graphical Ad List to identify it and block it in the future. The ad

is then submitted for inclusion in Guidescope's central database. Once an ad or other unwanted graphic makes the list, it is automatically blocked for all users.

Begin by downloading the file onto your Desktop and running the installation. Next, open your browser and follow the setup instructions from the Guidescope Web site. To receive specific instructions, tell Guidescope which browser you use. It then walks you through the process of entering an HTTP (Hypertext Transfer Protocol) address and port number for Guidescope to act as your new proxy server.

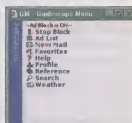
From there, it's just a matter of customization. Click the new icon on the Taskbar to open the Guidescope Web site and your own tiny Guidescope menu. While Guidescope blocks ads in the background, you can use this handy menu in the foreground. It contains links to shut off blocking, access the Ad List, find Help information, and check user mail. The menu also includes links for favorite sites, reference sources, search engines, and weather information.

Choose User Profile to pick which sites you want to open upon selecting these shortcuts. You may even opt to place a Profile link in the menu so that future customization is more convenient.

Guidescope runs on Win95, Win98, WinNT, and Win2000, and you can download it from <http://www.guidescope.com>. The software is free to home users and \$15 per year for a single business user license.

■ More Than Just A Roadblock. If you thought ad-blocking software merely blocked ads, we hope you'll think again. Today's ad-killers help you preserve what little Internet privacy you have left. By preventing ads from downloading to your system, they keep advertisers from tracking your personal information and preferences. **[E]**

by Hannah Henry



Take the handy Guidescope menu with you as you Web surf. Use the convenient links to quickly access favorite sites, reference sources, weather forecasts, your Guidescope user profile, and more.

Internet-Based Storage Sites

Vendors Add More To Their Offerings To Attract Consumers

As poker-faced comedian Stephen Wright has observed, "You can't have everything. Where would you put it?" These days, the answer is: "On the Internet, of course."

A year or two ago, Internet-based storage was a novelty, and just a little puzzling. Why would you store data on someone else's hard drive? Where would it reside, exactly? Would it be safe? How would you get to it when you needed it?

Nowadays, however, that idea (and the technologies which underlie it) is more mature, and millions of people use Internet-based storage. After all, we've long known that offsite storage is advantageous, primarily as a security measure. That's why banks have for years stored copies of their records in offsite data centers, and why network administrators often carry backup tapes with them as they go home at night: If something—fire, flood, earthquake—should happen to the physical plant in which the computers are located, that dusty shoebox full of tapes under the Sysop's bed might just save the business.

You, too, have important data on your computer. Perhaps it's not the entire year's business records (although that's certainly possible), but it's valuable information nonetheless. If you use your computer to keep expense accounts, insurance records, tax documentation, business communications, or that novel you've been working on, you have a perfectly

legitimate reason to consider some sort of offsite storage; if something happened to your home—or if your hard drive crashed—having another copy of that data could be a lifesaver.



■ It's More

Than Storage. Over the past year or two, more and more Internet storage sites have appeared, and the (often free) services they offer have become more sophisticated. These days, such sites not only offer storage space, but they also provide tools and additional services to make the utilization of that space much more straightforward.

For example, Driveway (<http://www.driveway.com>) provides a simple but functional

interface that makes it easy to manage your files. Most file management actions (Delete, Move, Open) are accomplished with a simple drag and drop of the mouse, and users can also use Driveway's search engine to locate files by category or by folder.

The major storage vendors, such as Driveway, FreeDrive, and i-drive.com, are working hard to market themselves as more than just offsite storage. In fact, Driveway's press releases tout the service as "your personal space on the Web," and it is busy making deals with application vendors such as McAfee to provide what amounts to out-sourced storage. (For more information, see the "What's Next?" section in this article.)

Another company, FreeDrive (<http://www.free-drive.com>), provides a similar interface.

It's intuitive, uncomplicated—even elegant. Users are presented with an

Explorer-like list of folders that they can click to expand and show their contents. A graphic gauge at the top of the page shows you how much offsite drive space you have free.

The company provides 50MB (megabytes) of space for free, and users can purchase more for between \$4 and \$6 per MB. And, like the other vendors we discuss here, FreeDrive lets you save Web content to your space; just click the "Surf-N-Save" icon, and you can save files directly to your FreeDrive space from anywhere on the Internet.

Other companies, including i-drive.com (<http://www.idrive.com>) and JustOn (<http://www.juston.com>) offer similar tools and services; all of them are not only useful, but easy to use. (JustOn was recently purchased by Novell.)

Offsite storage, in and of itself, is not really a cost-effective model, even given the fact that most of these companies offer you 25MB to 50MB for free. Generally, if you want to back up the majority of your data, you'll need more than that. And once you exceed the limitations for free space, the storage companies start charging you. FreeDrive, for example, charges a monthly rate of \$40 for a GB (gigabyte) of

storage. That means that, over a period of one year, you'll pay almost \$500 for your 1GB of extra storage. Since you could purchase a 10GB hard drive or a 2GB Jaz drive for roughly \$350, it hardly makes sense to consider offsite storage as a major value proposition.

One caveat: Beware of supposedly "unlimited" free storage. Most companies that advertise unlimited free space limit that free space to *Web content*. This means that you can save an infinite number of Web pages to your storage space, but that unlimited space offer may not apply to your other data. Before signing up, read the "terms and conditions" published by each company.

■ Signing Up For Service. Signing up for a storage/file management service is simple. Just go to the site and click the "sign on" (or similar) button or link. Generally, you're asked to enter a username and then a password.

In most cases, there'll be a "personal information" section, which asks for your name, postal and e-mail addresses, etc. Many times a short questionnaire will follow. This usually boils down to a "personal interests" or "tell us about yourself" section, the purpose of which is to collect demographic information for advertisers. If you'd rather not get on somebody's mailing list, then either don't fill that part out, or check the site's "privacy" and "terms of use" statements to make sure they won't sell your name to a list broker.

At some point, usually at the bottom of the registration form, most sites will ask you to click a button, which indicates that you've read their license agreement or terms of use statement. Be sure you actually read it. You need to know the terms and conditions under which you can avail yourself of the service, what is allowed and what is not, how they deal with possible copyright violations, and at what point they may begin charging you for the service.

That's pretty much it. Just submit the form and wait for an e-mail telling you that your account is set up and ready to use. Don't forget that, while the site may offer 25MB to 50MB of storage for free, they can and will charge you if you exceed that limit.

■ File Management & Collaboration. Over the past several months, you may have noticed a new wrinkle in Internet-based file storage sites. In fact, these days it's probably more accurate to call them file management and collaboration sites.

Since consumers have alternative (and less expensive) storage options available, the folks who run offsite storage sites have begun looking at other ways to increase their value proposition. The one most often mentioned is collaboration.

Driveway's Ed Tobin says, "File storage itself has moved off of the geek's desktop" and into the mainstream. What's happening now, Tobin says, is that users are "extending their workday and, as they get more and better access, we're finding a wealth of new stuff being shared."

What kind of stuff? Documents, proposals, photographs, databases, genealogies—you name it. If it exists on your hard drive, you can place it on an online storage site and share it with the whole world. Or, better yet, share it only with those with whom you truly want to share. These days, the ability to selectively and securely collaborate may be the prime reason for using an Internet-based storage site.

If you work at a networked company, or if you have a small network set up at home, then you already know that the major advantage of having all of your colleagues (and/or family) linked together is that everyone can share documents, programs, and utilities. You can write a draft of a document, and then place it on the network so your spouse or colleague can edit it. Then, when you've both agreed on the exact wording, the document is sent to a shared printer.

Networks are so convenient that one begins to wonder: Wouldn't it be great if the whole world shared a network? Think how much you could accomplish, how much could be shared, how easily we could collaborate with one another on designs, documents, information sharing, etc.

Well, guess what? The whole world does share a network. It's called the Internet.

The most compelling reason to use Internet-based storage these days is that these sites enable you to collaborate without the limitations normally imposed by time and space. In essence, using what we might

call the "world-wide network" frees you of those constraints. It doesn't matter if you finish working on your business plan at 3:00 a.m. in San Leandro because your business partner in San Juan can read and edit the plan at 9:00 p.m. when it fits into his schedule. And if you wish to submit the business plan to your banker in San Antonio at 5:00 p.m., you simply e-mail her the appropriate link and password, and she can view it at her convenience.

Perhaps most importantly, no one except those to whom you've granted access can view your documents. In some cases, you may even be able to designate certain people as having certain types of access.

The process is simple. You create a document on your local machine, edit it until you're satisfied, and then upload it to your

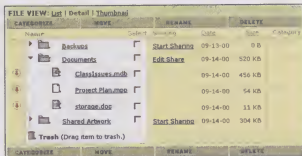
storage site. Once it's in your space at the storage site you can designate certain people as having the right to view and edit the document.

Generally, when you do so, the system will send an e-mail to those people, informing them that you've opted to share with them, and giving them a link and a password that they can use to access the document(s) you've designated as shared.

■ Any Time, Any Place. There's even a sense in which Internet-based storage sites allow you to collaborate with yourself.

If you're like a lot of people in today's workforce, you work at multiple locations. Your place of business may be the main site for a great deal of your work. But you may also have a home office and do some of your work there. And, of course, there are the occasional trips, whether for business or pleasure, during which you may choose to get some work done on one or more documents.

If you frequently travel and would like to be able to work wherever you happen to be, Internet-based storage is a viable solution—as long as you have Internet access wherever you travel.



Driveway's file management interface is intuitive and easy to use.

And remember, you need not be using the same computer at each of these travel locations. If you happen to be going someplace where you know you'll have access to an Internet-enabled computer, you don't need to drag your notebook with you. Just boot up a friend's or colleague's computer, sign on to the storage site, and download your document to that computer.

The computer you're borrowing may need to have the same software you've been using to create or edit your document, or at least a copy of a program that can read the data created by the original application. But don't panic. Most of today's word processors can read files created by other word processors. Just remember to save the document back in its native format when you've finished editing it.

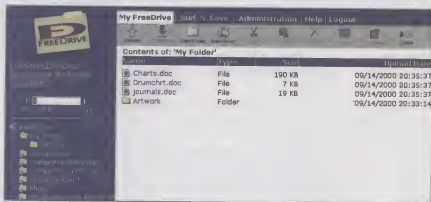
Let's assume that you want to work on a document at both your home and regular place of business on two separate computers. At the close of each writing session, the work in progress could simply be uploaded to the storage site, and then downloaded again (wherever you happened to be) whenever you're ready to write again.

In effect, we're talking about an instant, worldwide, and continuously available network. And what would you pay for this convenience? Not a thing, except whatever you're already paying for Internet access.

There's no question that this type of access is quite convenient. Some vendors, including Driveway and i-drive.com, include a service that lets you drag files from your Desktop (or from Windows Explorer) to a Desktop folder linked directly to the storage site. In this case, the "upload" process is a simple drag-and-drop task. Simply drag the file(s) to the service's folder, and the "upload" takes place automatically.

Of the storage sites we looked at, i-drive.com is especially pushing a variety of new ways to share files, including via PDAs (personal digital assistants) and WAP-enabled cellular phones. (WAP stands for Wireless Application Protocol, a set of standards that lets various devices share data.)

■ **Who's Guarding The Vault?** The second question people generally ask about Internet-based storage (right after, "Is it really free?") is:



FreeDrive presents a well-organized interface, including its graphics toolbar.

"How safe is my data?" In most cases, though, they're really asking two questions. First, they want to know: "Can other people see my files?" And second, they're curious about: "What's the possibility that my data will get erased or destroyed?" The answers are: "almost certainly not" and "very slim."

The providers of these services know they will attract customers (and therefore advertisers) only as long as their reputation for security remains unblemished. Your personal storage space is password-protected, your data is encrypted, and you can be assured that any reputable site will have an array of firewalls whose sole purpose is to ensure that unauthorized persons cannot gain entry to their servers.

As for the second security concern, most of these sites are located in "hardened" data centers, often provided and staffed by experienced data handlers such as AT&T and GTE. In addition, your data is usually backed up in several ways, including the use of "mirrored" sites and RAIDs (redundant array of inexpensive disks; technology used to spread data out over several drives, any one of which can crash or be removed without affecting the integrity of the data).

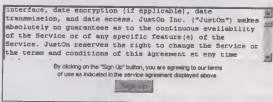
For example, i-drive.com, notes that its servers "physically reside in a locked data-center, protected 24 hours a day by security personnel, surveillance cameras, and biometric door locks." Biometric door locks? These people are serious about this security issue.

Does this guarantee that your data is 100% safe? Absolutely not. That's why Driveway's "Terms and Conditions of Use" policy notes that "no password-protected system of data storage and retrieval can be made entirely impenetrable. Accordingly, you hereby acknowledge that it

may be possible for an unauthorized third party to access, view, copy, modify, and distribute the data and files you store in Your Account." Other sites use similar language.

What does this mean to you? Well, it means that if you have data that is either so sensitive that you absolutely cannot let anyone else to see it, or it's so valuable that you absolutely cannot afford to lose it, an Internet-based storage site is probably not the place to keep it. (In fact, if that's the case, there may be nowhere safe to keep it. Although you could break up your sensitive document into pieces and keep each piece on a different storage site, and then . . . no, never mind. That starts to get awfully complicated.

especially considering most of us can't even keep track of our car keys.)



By clicking the Sign Up button, such as this one at JustOn, you're indicating that you agree to the terms of the vendor's membership agreement, so make sure you read the terms before signing up.

at it. And Web sites go down all the time, sometimes for hours at a time. So, should you worry about lack of access? Not really.

Like other e-commerce vendors, providers of Internet-based storage and file management sites have a vested interest in seeing that their downtime stays very low. Like all Web sites, storage sites are subject to the

malfunctions and slowdowns typical of the complex network that forms the Internet. If a line provider goes down, if a router fails, if the Internet itself (or, more accurately, some significant piece of it) suffers from an occasional hiccup, then access to your data may be denied for some period of time.

The reputable storage vendors have done as much as possible to avoid downtime. They know very well that people will not trust a storage site to which they are regularly denied access, regardless of the cause. Because of that, major vendors such as i-drive.com, FreeDrive, Driveway, JustOn, and others maintain redundant systems; there are really multiple copies of your data, and if one of their drives goes down, your data is still available.

Similarly, most vendors maintain multiple connections to the Internet itself. If one of their providers has an outage, they can almost always switch to another provider. (In fact, many switch back and forth automatically at various times to even out the online traffic; this technique is called *load sharing*, and it is commonly used in any network environment. On the Internet, it means routing traffic from a busy server to one which is currently less busy, or from one bogged-down connection to another that has more bandwidth available.)

The result is that all of the services discussed here measure their uptime in the

over the course of a full year, the system will actually be down for a total of approximately three and a half days. And, again according to calculations from Reynolds, even an uptime of 99.5% still means that the system will be down for almost two full days.

Because of the vagaries of the Internet, and because even 99% uptime means that the system will still be down at some time or another, you'll find that the storage site folks are careful not to promise what your data will *always* be available. FreeDrive's "Terms of Service," for example, points out that the "service comes with no warranty and is 'as is' and 'as available' only. You assume all risks associated with accepting a service of this kind. Further, FreeDrive expressly disclaims every type of warranty, whether implied or not implied." Other companies list similar qualifications.

■ What's Next? You've seen that storage providers have evolved their product to meet the requirements of consumers, even consumers for whom drive space is not a particularly compelling need. What began a year or two ago as a few simple online storage sites has now developed into a strong niche for providers of online file management and collaboration tools.

That evolution is still ongoing. What's next? Look for a lot of co-branding initiatives to crop up. As vendors of other applications (virus checkers, educational

content providers, etc.) find reasons to offer consumers storage space and online file management capabilities, they'll be making deals with the storage sites.

One prime example is Driveway's recently signed contract with McAfee. Driveway will be supplying McAfee with storage space for users of McAfee's products. So, if you

subscribe to a McAfee service, you may begin seeing a "Powered by Driveway" logo on the McAfee site or product. For example, if the product advises you to back up your data prior to running a McAfee utility, that data will be saved on Driveway's servers.

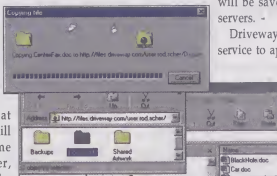
Driveway is marketing this service to application vendors as a "private label service," the idea being that the vendors will outsource the storage and file management capabilities it wishes to provide to its customers through Driveway, and—with the possible exception of the "powered by" logo—the user will see the added Driveway features as part of the McAfee tool.

Driveway is not the only service to begin offering "private label" features to application vendors. JustOn, FreeDrive, and other such vendors are also doing so. Some have begun an "affiliates" program through which, if you run a Web site, you can now offer storage and file management (outsourced to the storage service) to folks who use your Web site. One company, i-drive.com, has gone as far as creating a university consortium. They've partnered with a number of universities (including Stanford, Case Western Reserve, and Wake Forest, among others) to supply the schools with storage space for students and faculty.

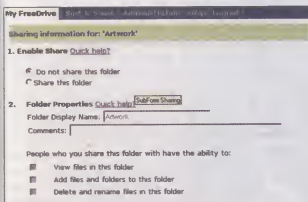
■ Added Value Is The Goal. For the storage and file management vendors, "added value" is what counts. Simply offering storage space (even for free!) is no longer enough to attract customers. As we've seen, such services are branching out into fairly sophisticated file management and online collaboration tools, and they are beginning to make deals with a wide variety of application vendors.

No one knows for certain what this evolution will encompass, but one thing is for sure: As vendors in a highly competitive, service-oriented arena such as this scramble to add value to their offerings, the ultimate winner will be the consumer. **[E]**

by Rod Scher



Driveway, i-drive.com, and other such vendors provide a tool that lets the user automatically upload files by dragging them to a folder on the Desktop.



Like the other online storage sites, FreeDrive lets you designate a folder as shared for collaboration purposes.

95% to 99% range. Odds are very good that, when you need access to your data, it'll be available.

Note, however, that even 99% is not perfect. Matthew Reynolds, developer and author of "Professional Visual Basic 6 Database," says an estimated uptime of 99% over a period of 365 days really means that,

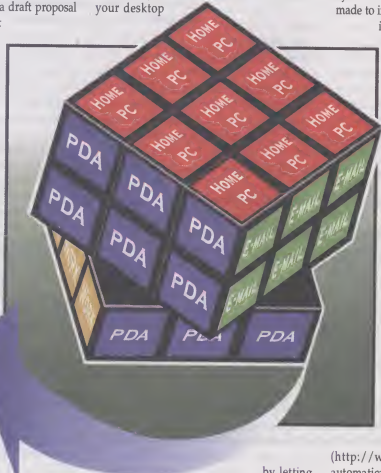
All Together Now

Synchronize Your Data On The Internet

There's a modern syndrome afflicting most of us, but it has no name. Call it "disjointed data" or "malignant information." Unless you are the king or queen of organization, you've probably been a victim. Have you ever been out of town and looked for a phone number in your Palm PDA (personal digital assistant) and realized the number is back home in your computer's address book? Have you ever written a draft proposal on your PC at work, revised it at home, and then ended up sending the draft instead of the revision to the client? Have you ever used a Web-based e-mail account while traveling and then had to modify your regular e-mail account when you returned home? Have you ever had to convert a Word Perfect file from your kid's soccer team's coach in order to put it in a report you're preparing in Microsoft Word to send to all the parents?

You've probably said to yourself, "There has to be a better way." There is. Web-based synchronization sites, many of them free, exist to let you automatically update information on all your Web-enabled devices at once. So when you enter a new phone number into your address book, it will automatically go into your PDA and contact management program. If you revise a work file at home, the revisions will automatically be made on your PC at work. Now any changes you make to one e-mail account will be automatically reflected in a synced account. Eventually, synchronization will let you seamlessly integrate the coach's Word Perfect file into your Word report.

You can't synchronize some data, such as the great marketing idea you scribbled on a deli napkin, the phone number you wrote on your hand, or the unwritten delivery date you promised a customer. But oh the grief you can avoid if you can get all your electronic devices coordinated. It frees you from having to make multiple entries of data and unleashes you from your desktop



by letting you access your data from any Web-enabled device. Moreover, you can easily share data with others, even though your devices are sometimes incompatible.

How you choose a service to synchronize data will depend on two things: what data you need to synchronize and what hardware and software you use. For example, do you need to

synchronize all your work files among your home and work PCs and notebook? Or do you need to synchronize your PIMs (Personal Information Managers), that is, calendars, to-do lists, address books, and contact lists? You'll need to consider whether you use a Palm III or VII or Windows CE Personal PDA, as well as what brand and model of wireless phone you use. Right now, each of the Web-based synchronization sites is limited in what services it can offer and what hardware devices it can synchronize. But these sites are quickly expanding their capabilities so you'll want to check to see which one best serves your purposes.

■ Stuff That Can Be Synced.

Synchronization of data means that an update made to information on one device is automatically made (or made with one click)

to all the other devices that share that information. There are light versions of sync and heavy-duty versions. The light versions are essentially Web-based PIMs. An example is Yahoo! (<http://www.yahoo.com>) which uses TrueSync software that you download to your computer to enable you to keep your calendar, address book, and to-do list updated across Microsoft Outlook; Palm devices; Windows CE devices; ACT! contact manager; Motorola, Ericsson, and Nokia phones; and REX Pro. For more details about hardware and software requirements, as well as benefits and features, go to the Yahoo! Web site (<http://www.yahoo.com>) and click Calendar, then click TrueSync in the fine print at the bottom of the page.

TrueSync, which is also the utility behind the synchronization features at Excite.com (<http://www.excite.com>), can detect and automatically fix duplicate entries. It can also detect scheduling conflicts. In addition, it features intelligent field mapping so that data can be plugged into fields that are categorically the same but have different names on different devices, such as Events vs. Meetings.

TrueSync works by using "multi-point synchronization" of your devices. For example, your Palm or CE is plugged into its host, and

all devices are connected to the Internet. Click a button, and everything is updated at once.

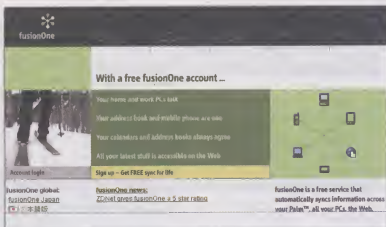
The heavy-duty versions of synchronization allow all of the above, but also synchronize files and, in some cases, give you free storage space on their Web sites. The leading services are fusionOne, Visto.com, and WeSync, and more services are in the works as we write.

■ **fusionOne.** "Store and forward" transactional architecture is at the heart of fusionOne's (<http://www.fusionone.com>) free service. When you add an entry (make a transaction) to your address book on your PC at work, then you'll connect to the Internet and synchronize the data with Edoack.com, the fusionOne site where all of this data management occurs. The new entry will then be forwarded automatically to your notebook, wireless phone, etc., the next time you connect to the Internet. Read and delete e-mail on your desktop, and the deleted messages will vanish from your notebook; compose and send e-mail using your notebook, and the message

you composed will be added to your desktop's Send folder, as well. This feature, in and of itself, is a huge timesaver.

When you're synchronizing data with receiving devices that are incompatible with the sending device, Edoack converts the data into the appropriate format. For example, if you use Microsoft Outlook on your home PC and Netscape Communicator's e-mail program on your office PC, Edoack will translate your data. Ideally, this capability would exist across all devices and platforms, but no one can make that happen yet.

fusionOne offers its users another unique service. You can use any Internet-connected computer to listen to the MP3 tunes you downloaded to your home computer.



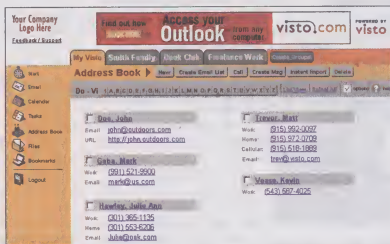
fusionOne is a free Web-based service that automatically synchronizes data on your PC, Palm PDA, and mobile phone.

Although in some ways fusionOne is less sophisticated than TrueSync (its service lacks an intelligent mapping feature, for instance), this ambitious company is worth watching for its drive to expand its product. For example, the company partnered with Sabre, a provider of travel reservation and data systems, to integrate its synchronization service with Sabre's travel Web sites. This will give travel agents and corporate travel departments synchronized access to Sabre's services, and consumers will be able to synchronize itineraries on their PCs, PDAs, mobile phones and, portal applications.

you'll see ads on the site and, if you agree, receive e-mail promotional messages from fusionOne on behalf of its partners and advertisers. Demographic information and the devices list that you provide when you sign up help fusionOne target ads. The company points out that to protect privacy, it does not and cannot monitor a subscriber's behavior or the content of data to target advertising.

The company is candid in explaining on its Web site just what information it uses. Only you have access, via a password, to the data you synchronize. As with many of the Web sites you visit, the service does place cookies and log files in your computer to track information about you. You must have your computer enabled to accept cookies in order to use the service.

■ **Visto.com.** Visto.com calls itself "your home on the Internet." Your home probably isn't cluttered with ads, but you'll probably find yourself going to Visto.com (<http://www.visto.com>) about as often as you go to the refrigerator. With Visto.com, your address book is synchronized across devices and PIMs, such as



Wondering which address book has your accountant's new phone number? With services such as Visto.com, you'll have one integrated address book available from any computer or Web-enabled device.

The company has also partnered with FranklinPlanner.com, a subsidiary of Franklin Covey, to provide Internet Sync synchronization for its soon-to-be-launched online planning system site ([FranklinPlanner.com\). The two companies have worked to integrate the Franklin Covey group of categories \(Values, Roles, Missions, Goals, Prioritized Task List, Weekly Compass and Daily Record of Events\) not found in other PIMs so they can seamlessly synchronize data across devices. Users of the Franklin Covey organizational tool can download a pre-release version of the online planning system from the Web site.](http://www</p>
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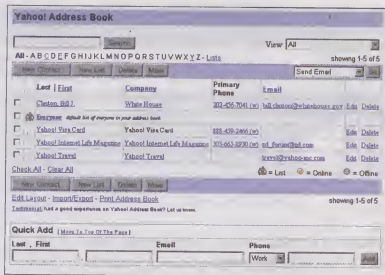
Also in sync are your bookmarks; your e-mail accounts, which are consolidated in a single inbox; your calendar; and your to-do list. In addition, Visto.com gives you 15MB of storage space where you can manage or back up files so you can restore them in case your computer crashes. You can buy additional storage space if you need it.

Password-protected online group collaboration is another great feature. You can use it to plan a family reunion, post photos of the new baby, or run an investment club where members can post their reports.

■ **WeSync.** WeSync (<http://www.wesync.com>) specializes in free sync services for handheld devices. With WeSync, you can display up to eight calendars side by side on a handheld device and view even more on the WeSync Desktop Viewer on your PC. WeSync has more than 1,000 categories for employee rosters, client lists, family addresses and phone numbers, businesses, restaurants, etc.

Wireless Refresh is one of the nifty features of a WeSync account. You can subscribe to information on someone else's handheld device, with their permission, of course. (Warren Buffet probably isn't into sharing.) For example, you and your spouse might want to share calendars. If your wife changes her travel plans on her desktop calendar, the change will be made automatically to the version of her calendar that you can access on your Palm VII.

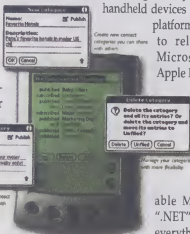
You can also subscribe to various events calendars, such as trade show calendars, or to specialized address books, such as one made up of airline 800 numbers. WeSync is adding to this list of subscription features, and its plans are to include financial information and business resources.



Yahoo! will host your Address Book, Calendar, and To-Do list, and it lets you synchronize among different programs and devices, including the Outlook program, Palm devices, Windows CE devices, ACT! contact manager, and mobile phones.

Wireless Refresh overcomes one of the major challenges in wireless data synchronization. It lets you selectively specify a limited amount of data to refresh (or update) so that you don't run up huge bills for connect time or overwhelm the Palm's processing capabilities.

You use a Palm; your spouse uses Windows CE. Are you forever digitally incompatible? Although WeSync's initial solutions for handheld devices are designed for the Palm platform, the company also plans to release versions for the Microsoft Windows CE and Apple Macintosh platforms.



With a WeSync account, you can synchronize data on the devices you own and "subscribe" to a spouse's or colleague's information.

■ **Microsoft.** So, if synchronization is the next great wave, where's Microsoft? It's trying to harness it with the not-yet-available

Microsoft .NET (or just ".NET"). This software features everything but the kitchen sink.

Not only will it offer synchronization of your data among all your Web-enabled devices, but it will also simplify the work of Web developers by moving from the clumsy HTML (Hypertext Markup Language) standard to programmable XML (Extensible Markup Language). Microsoft .NET will make Microsoft software available over the Internet.

customers who demand speedy, easy-to-understand procedures for ordering and service.

Microsoft .NET will not appear overnight and who knows whether it will become the new standard or just a sync service among many. Microsoft CEO and President Steve Ballmer likens the appearance of .NET to the evolution from the MS-DOS platform to Windows. We'll see.

■ **Stay Tuned.** Synchronization is an idea that's time has come, even if true synchronization remains a dream. Industry leaders are working together to develop an open standard, called SyncML (<http://www.syncml.org>) that will support all devices and platforms.

The other hurdles are issues of privacy and security. These issues have prevented people from using credit cards to order products from the Web and, a decade or two ago, from using credit cards to order products over the phone. Improved, but not foolproof, security measures were put in place, and, at some point, most people decided that their desire for convenience overrides the risk, and they joined the ground swell of shoppers. So, it will probably be with synchronization. One day, if not now, chances are you'll synchronize your data on the Internet. [E]

by Leanna Skarnulis

Software Through The Internet

Why Buy When You Can Outsource?



All business owners are aware that there's a bit more to the cost of software than just its price tag. Sure you have to pay for the license to use it, but then you have to hire people who can keep it running properly and tune it so it matches the needs of your business. Administrators without much experience will have to be trained, and you'll have to deal with the problem of keeping your data safe from both outsiders and unscrupulous insiders. This wouldn't be so bad, but the other harsh reality of business technology is that you'll rarely be able to buy an application and use it for years without either upgrading or replacing it. That continues the entire buying, maintaining, and training cycle that can seriously eat into a business' bottom line.

Of course, many software companies have recognized this perpetual problem that business owners face and have come up with many services to help deal with it. Perhaps the best solution is to turn to one of the many ASPs (Application Service Providers) and pay it to deal with problems that would be much more expensive if you tried to take care of them in-house. ASPs let companies rent software applications and services that are maintained by the ASP's employees. Instead of hiring a network engineer, securing appropriate licenses for everyone on your network, and then installing all of the software you can just contact an ASP, tell it how many employees you have and what type of service you need, and it will take care of everything.

■ The Team Approach. The best reason to consider renting software from an ASP is that it gives smaller companies virtual access to a team of trained technicians they otherwise would never have the resources to hire. There's no point in hiring a full-time IT (Information Technology) department, or even a full-time technician, if you'll only need their services occasionally. The unfortunate fact is that when you do need computer technicians you usually need them desperately, and that's where an ASP, with complete access to your software and data, can really help. It's like

having a quick response team of engineers on retainer that can solve you software glitches on a moment's notice.

Even if the ASP you are with doesn't let you interact one-on-one with computer experts, it at least keeps your software running as smoothly as possible by applying all necessary patches and upgrades. Installing new software on any number of office machines is a chore, and having a team of knowledgeable workers doing it for you can save loads of time and money. Just be aware that there may be some training costs involved if the upgrades are significant.

Being able to budget a specific amount of money for all of your software needs and being able to get software on something akin to a cafeteria plan are two other major advantages ASPs offer. Most ASPs make their subscription prices clear from the get-go, letting you estimate costs before you ever contact



AboutFace is a comprehensive Internet-based employee directory that you can easily expand as your business grows.

them. That makes it easy to know how much money you'll need to spend for software each month once you do subscribe. Many ASPs charge customers only for the specific applications they use, meaning if your company needed only part of an office suite, the database and e-mail software, for example, you could get them without paying a fee for unnecessary word processor and spreadsheet applications. Some ASPs charge customers based on the amount of time they actively use an application rather than charging a flat rental fee for unlimited use. This would be a good choice for a seasonal business that needs a lot of extra software and support for a few months a year but can get along without any external help for the remainder of the year.

Finally, ASPs let a business save on hardware costs. Some use a client/server model where the actual applications are stored on the ASP's computers and customers need only run

relatively small client programs to access them. This means you don't have to have the latest, most powerful equipment to get the most out of your software. Additionally, off-site storage can be cheaper and safer than maintaining data backups in the office.

■ **ASP Drawbacks.** It's ironic that an ASP's greatest strengths serve as the doors to their inevitable caveats. While it's a boon to have your software stored off-site and maintained

by a horde of skilled technicians, if you can't immediately contact those technicians when something goes wrong, there will be no way to fix the problem. Although it never hurts to ask, 24-hour technical support is practically a standard feature when it comes to ASPs.

There are more mobile business professionals than ever, and they provide perhaps the biggest challenge to ASPs and to companies that use ASPs. Most ASPs require that clients have a constant Internet connection, which is

hard to establish when you're using a laptop on an airplane. The wider availability and decreasing costs of mobile Internet access should alleviate this problem somewhat in the coming years, but it will be some time before mobile wireless technology can approach the speed, reliability, and relative cheapness of a physical broadband connection.

The amount of trust businesses must have in the ASP can also be off-putting. If any of your data is stored with the ASP, and it usually is, you may be rightfully concerned about damage, data loss, or security problems. It may also be a problem that some ASPs can peer into your internal network to check for software licensing compliance. Windows 2000, the operating system most businesses use, has a central folder called the Active Directory that handles network security, contains information about user accounts, and stores licensing data for all of the software installed on the network. If an ASP has access to the Active Directory, and most have to in order to remotely install software, it can easily verify that each machine on the network has unique copies of software with serial numbers that check out.

■ **Outsourced Software's Future.** The ASP market has been in such a constant state of flux for that last few years that it's difficult to tell where the industry is headed, but it is likely that getting our software through the

.NET? Not Yet

Microsoft is banking on its .NET platform, hoping it will establish a number of standards that will make gathering, accessing, and sharing your data much easier. Microsoft hopes that other software and device manufacturers will embrace the .NET architecture, using it as a common foundation that will let all .NET-based hardware and software communicate seamlessly. The .NET platform will use the Internet as its software distribution and communications platform and is based on the powerful XML (Extensible Markup Language) Web language.

The company is promising that .NET products will offer a number of enhancements for end-users, including advanced voice and handwriting recognition interfaces, intelligent automated agent software that seeks out information on your behalf, and SmartTag technology that dynamically scans documents for names and other keywords so it can provide links to related information. Microsoft is incorporating a number of new services, such as an advanced Calendar application first

demonstrated at Forum 2000. Users will be able to establish rules regarding when they can be bothered with e-mail and phone calls and also synchronize their calendars with those found on the Web, such as sports team schedules, or calendars used by friends, family, and colleagues.

If all goes according to plan, .NET users will be able to access all of their messages from a single account using any device based on the .NET platform. Letting users establish something akin to a permanent Web identity is a key component of the .NET initiative and eventually will let users browse the Web, shop, and enter sites where they have a membership without ever having to type a password or enter a credit card number. Ideally Microsoft would like to address the security issues associated with a technology like this by incorporating biometric (fingerprints, retina scans, etc.) authentication into the process, making it virtually impossible for anyone else to access your account. Of course, the system tracks your digital identity and maintains a complete

history, presumably to let the agent software do its job more effectively, and this is bound to raise more than a few eyebrows.

Microsoft's .NET products probably won't be for sale by the time you read this, but the company has nailed down its roadmap for the technology. Microsoft plans to release Windows .NET 1.0 in 2001, but Bill Gates said at Forum 2000 that all the .NET features it eventually plans to implement will not be in the first iteration of the software. Microsoft plans to phase subscription-based .NET products in very slowly, selling standard Windows, Office, and other software licenses alongside the .NET versions. "This is a long-term transition," said Microsoft president and CEO Steve Ballmer at Forum 2000. "We're going to be selling copies of Microsoft Office for many, many years." The .NET versions of Office and other Microsoft programs, along with a next-generation .NET-enabled version of the company's MSN service, will roll out over the next few years, as well. □



It's hard to say if ASPs that cater to specific industries will flourish, or if they will be absorbed or supplanted by the bigger ASPs.

Internet through a subscription service will become the norm. Two of the biggest companies in the software business, Microsoft and Oracle, are backing sweeping ASP initiatives that promise to change the way we look at software.

Microsoft's .NET strategy is perhaps the most ambitious we've seen. In all references to its upcoming .NET platform, Microsoft has



Oracle Sales Online is one of Oracle's free Web-based services for business customers.

stressed that its next big move will be to convince people and businesses to view software as a service instead of simply a product. Eventually most Microsoft products, including Windows and Office, will be offered on a subscription plan instead of as single-license products that have to be upgraded each time a new version of the software appears.

Microsoft certainly has plenty of examples for moving as many software products as possible to a subscription-based service. At this time, Windows users are free to pass on incremental upgrades to Office or the Windows operating system, but in the future a subscription will mean anyone who wants to use the .NET version of those applications will have to pay Microsoft at specified intervals year after year. It also is a given that users will have to pass certain security measures to get the upgrades, which has the potential to cut down on software piracy, especially in businesses. You can read more about the .NET initiative in the ".NET? Not Yet?" sidebar and by visiting Microsoft's Web site (<http://www.microsoft.com/net>).

Oracle's main ASP offering is its E-Business Suite, which is a collection of powerful business applications that businesses can access through the Internet. The suite is broken into several categories that correspond to the various departments of a typical business, such as Manufacturing, Human Resources, Marketing, and Sales. Oracle also offers products designed to help specific types of businesses, such as universities and financial institutions. There are several tools available within each category, and companies are free to pick and choose

only the services they need. The Sales category, for example, contains the iStore application that lets businesses completely outsource their online stores, transparently tacking them onto an existing Web site. Oracle also offers a number of free Web-based applications, such as Oracle Sales Online (<http://www.oracle.com/salesonline.com>), which lets your sales team collaborate from anywhere that an Internet connection is available. The service includes a robust calendar application that lets everyone on the team compare schedules and also has a complete customer contact database. Future versions of the service will let users integrate the online database with their Microsoft Outlook software and Palm OS devices.

Licenses for E-Business Suite applications are based either on the number of users in your company who will need access to the software or on the amount of computing power you will use to run the applications. In this latter model, the pricing scales up in proportion to the number (and type) of servers that you will use to run the E-Business application, meaning smaller companies with minimal needs pay far less than an enormous company that must absorb a lot of

Web traffic each day. For example, if you have four servers running at 800-MHz each that use Intel processors, Oracle will charge you for 3,200 UPUs (Universal Power Units). With a never-ending perpetual license, an iStore licensed for 3,200 UPUs costs \$302,400 at the time of this writing, and that includes a volume discount. A license that expires after two years would cost \$84,000 for a 3,200 UPU environment. Oracle has much more

information about the service and its costs at its Oracle Applications Network Web site (<http://www.oracle.com/appsnet>).

The big companies aren't the only ones getting in on the action. Look for the emergence of many ASPs that are highly specialized, such as ChartOne Services (<http://www.chartone.com>).

ChartOne targets the health care industry, providing secure, encrypted storage for medical records along with database and tracking software for managing all of the virtual paperwork. Soon there will be ASPs tailored to nearly every business sector, meaning few companies will have to settle for using generic applications.

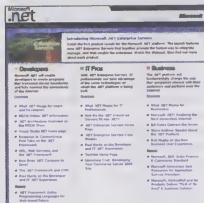
Help For Small Businesses Most of the ASP's we've discussed up to this point probably won't help small businesses with 50 employees or less, but rest assured a slew of ASPs exist that cater to the small-business owner. Most of these services are entirely Web-based, and some are free, although not all can guarantee the same level of scalability, reliability, or expertise offered by the ASPs designed to serve large businesses.

A good example of a Web-based ASP for small businesses is Interlant's AppsOnline (<http://www.appsonline.com>), which has partnered with a number of application providers to rent out software titles. One of these is Atlantic Media's AboutFace, which lets companies easily create an online employee directory that anyone can access using his Web browser. Directory information can include pictures and skills data that tells others what their colleagues specialize in. The service is free for companies with 20 employees or fewer, and pricing scales up to a maximum of \$150 per month for unlimited employees.

Services, such as AboutFace and Oracle Sales Online, that you access through a Web browser are so easy for an ASP to create and maintain that competition will guarantee that small businesses will always have plenty of providers and applications to choose from. There are hundreds of companies gearing up to cater to medium-businesses and enterprise-class companies. As the

ASP competition heats up, software rental and subscription services should fit the budgets of most businesses, letting them focus on more important matters than maintaining software applications. [E]

by Tracy Baker



Microsoft's .NET Initiative could become a powerful industry standard if enough customers and other ASPs embrace it.

Integrated Applications

All-In-One Programs Keep It Simple



Surfing the Internet with your PC should be fun and simple to do. But, as many computer users have unhappily discovered, it can sometimes be a complicated and time-consuming ordeal.

For example, say you're browsing the Web with Internet Explorer, but decide to check your e-mail. You launch Outlook and start reading through your messages. One of your e-mail friends wants a quick answer to a question, so you fire up America Online's Instant Messenger software to see if he's online. He is, but invites you to an IRC chat room instead, which means you have to launch your chat software. And so it goes, with the programs multiplying on your taskbar, leaving you forced to juggle windows back and forth on your little 15-inch monitor.

The solution: integrated desktop applications, which is a fancy term for "all-in-one" programs that let you do a variety of things at once, without having to launch a bunch of programs. Most of these new programs let you browse the Web,

send e-mail, and chat, all without having to load a separate application.

As a bonus, many of these programs also let you "customize your desktop environment." In other words, you get to pick the colors and patterns and overall themes of the windows you will be spending time looking at. In most cases, you can pick which type of content you want displayed, which could include your local weather forecast, sports scores, stock information, a link to your favorite newspaper or bookstore, and so on.

Here's a how-to guide for several of these up-and-coming desktop programs, which can go a

long way toward restoring fun and simplicity to your Internet computing experience.

■ **NeoPlanet.** Launched at the beginning of January 1999, NeoPlanet (<http://neoplanet.com>) has rapidly gained in popularity, with an estimated 5 million users as of summer 2000, according to Drew Cohen, president and CEO. NeoPlanet incorporates a Web browser (built on Microsoft's Internet Explorer), an e-mail program, and chat and instant messaging applications. The program will soon feature a download manager that promises more speedy, efficient, and easy-to-run downloads, including a feature that will let users resume interrupted downloads.

NeoPlanet is perhaps most known for its use of customizable "skins," which are appearance themes that include backgrounds, fonts, sound effects, and other elements designed to create an overall look. For example, you can download a skin based on the MTV cartoon

show "Daria," which features several tiny images of Daria characters sprinkled throughout the browser screen, plus animated buttons (forward, back, stop) that turn into the faces of Daria characters when clicked. Warning messages or system alerts are announced in the voices of Daria characters.

This is one of many NeoPlanet skins. Some are the creation of NeoPlanet designers or the companies that NeoPlanet has formed partnerships with, such as Universal Pictures and Interscope Records, which has developed skins for recording artists such as Eminem, Beck, and No Doubt.

Other skins were designed by users who have taken advantage of instructions on the NeoPlanet site and made their own. These range from tributes to favorite cartoons, such as "Scooby-Doo," to interesting holographic effects to colorful artistic themes.

"The first thing that we think hooks a lot of users are the skins," says Cohen. "For the users who stay with the product, though, it's a lot about being easy to use and customizable. They know we are delivering new features all the time."

NeoPlanet is based on Internet Explorer programming code, and requires users to have this program on their computers, which must be Windows PCs. However, NeoPlanet programmers are developing a version that will run on Macintosh and Linux machines, says Cohen. This is expected to be available by the end of 2000.

In order to use NeoPlanet, you must first go to the company's Web site and follow the download links. Save the program to your desktop. When you are ready to install it, make sure you are online since the program requires additional materials from the server to complete the installation.

Once the program is installed, you will see the default NeoPlanet "skin," plus the default home page, which is the Lycos home page. (NeoPlanet and Lycos have a business relationship.) You can then begin customizing the program. For instance, if you want to change the default home page, click Options and double-click the Your Home Page link. You can then type in the URL of a page you would prefer to use instead.

If you want to change the NeoPlanet appearance by adding new skins, click the Skins icon. When the program is first loaded, it does not come with any other skins. To add these, click the tab that says Import more skins from the skin archive. This will take you to the

skins archive on NeoPlanet, which presently holds about 555 of them, organized in about 20 categories. To see a skin, select a category, then scroll through the thumbnail images to find ones you like. If you click Skin Details, you will see a larger image showing what the skin looks like once installed. Click Install Skin to add it to your NeoPlanet browser.

You can also send e-mail with within NeoPlanet. Click the Options button, then choose E-mail. You can choose to use NeoPlanet's integrated e-mail program or you can have NeoPlanet link to another program, such as Outlook Express. Once your e-mail settings are in place, you access mail by clicking the main Mail tab on the browser toolbar.

Another key NeoPlanet feature is its channels, which are collections of favorite Web sites organized by topic. These can be imported from other browsers on your PC. You access your channels by clicking the Channels button on the browser bar. To add or remove channels, choose Channel Designer from within the Channels menu. Channels also are listed on the far-right side of the browser.

If you want to send an instant message or chat, you can only do so with other NeoPlanet users for the time being. Cohen says he hopes to have an agreement with AOL by the end of the year which would allow NeoPlanet to incorporate AOL's instant messaging software.

To access chat and instant messaging within NeoPlanet, click the Clubs icon.

InfoSpace.

InfoSpace's Personal Desktop Portal software (<http://www.infospace.com>) is similar to NeoPlanet in offering a small download (less than 3MB) that includes an integrated Web browser, instant messaging and chat applications, and an e-mail program. Unlike NeoPlanet, InfoSpace has been made available to wireless devices, such as Internet smartphones. It doesn't fill up your computer screen, but rather operates as a toolbar a little larger than the standard Windows Taskbar. This toolbar can be customized with

different skins. InfoSpace lets you access online versions of your address book, calendar, and to-do lists, rather than pulling the information from a desktop source, such as Outlook. The program also uses the MSN Messenger service for instant messaging, chat, and buddy lists. To access any one of these features, simply click the appropriate button on the portal taskbar.

Parents can set up a parental control system within the Personal Desktop Portal to protect children surfing the Web. InfoSpace's software is free and available for Windows PCs only.

Enfish Onespace. This nifty program (available at <http://www.enfish.com>) is a great way to organize and retrieve information already stored on your PC. It's combined with a Web browser for new information, plus a calendar/to-do program. Onespace is based on

Enfish's acclaimed Tracker programs, and works by initially indexing, or recording, information on your hard drive, which could include all your e-mail, for example, or any other folders you specify. Enfish can then search this information for any string of text you are seeking.

Enfish also keeps track of all the contacts you have listed in any address book programs, such as

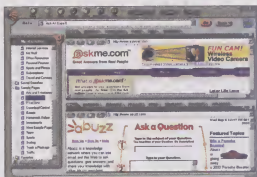
Outlook, as well as your appointments, tasks, notes and other to-do lists.

In addition, the program has a Web browser that is organized to include a variety of handy channels, such as Gifts (with links to florists and booksellers and similar

merchants) and Experts (with links to sites that let you query experts on a wide range of topics).

You can send e-mail through Enfish, but the program links to your existing e-mail application, rather than providing its own e-mail programming.

Enfish doesn't allow chats or instant messaging. The program, which is Windows PC only, is a free download.



Enfish's channels are organized in easy-to-use categories. For instance, if you want to find an expert in something, pick the Ask An Expert category and then select from the sites Enfish suggests.

Opera. Opera (<http://www.opera.com>) offers a

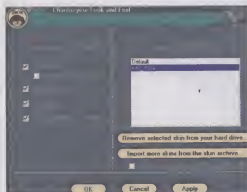
powerful Web browser and integrated e-mail, with its own e-mail program and contact database, plus newsgroup support. It can be used entirely with your keyboard, so if you don't like using a mouse or trackpad, this is the browser for you.

Unlike the other programs listed here, Opera is not free, though you can download and test it out free for 30 days. The cost to keep the program is \$39. The program is for Windows PCs. A Linux version is in preview release and a Mac version is planned.

Netscape & America Online. Since both of these programs have been longtime leaders in program integration, it's only fair to include them here along with the newcomers. (We don't include Microsoft Internet Explorer, as it does not have a fully integrated e-mail program.) Netscape (<http://www.netscape.com>) includes a Web page composition and editing component as well as browser and e-mail functions. You can download it free from the Netscape site. The newest version (Netscape 6) will also include support for skins. Netscape includes an instant-message component based on America Online's Instant Messenger (AIM) software.

America Online (<http://www.aol.com>) has always included integrated e-mail, newsgroups, chat and instant messaging, along with a Web browser and proprietary content. AOL's software is available free, but you'll need to choose a subscription plan to use it. **[S]**

by Lorna Collier



The Daria NeoPlanet skin includes images of the popular MTV cartoon character, as well as sound effects. To change skins, select the Import Skins tab and choose another one. You can turn off sounds, graphic effects, tool tips, and fancy menus if you don't like them.

Shop 'Til You Drop

Finding A Bargain Just Got Easier

Everyone would love to have a hired helper or two to perform many of the tedious tasks involved with shopping. These helpers—if you're in Hollywood, you call them "my people"—would greatly simplify the shopping process by taking care of price and product comparisons for you. Unfortunately, unless you're a star in Hollywood, using "my people" to perform such tasks probably isn't affordable.

Fortunately, when shopping on the Internet, using "my bots" to perform such comparison tasks is affordable—it's free. Shopping services on the Internet, also called shopping bots (short for robots because of their automated features), will search dozens of stores for the best prices on thousands of products. Essentially, these are automated price-comparison services.

The best shopping services are improving and adding to their price-comparison features all the time. Many services now provide their users with product information, consumer tips, and pricing information. In addition, product-specific shopping bots that offer greater expertise in a certain area are starting to appear online.

Bots. With thousands of merchants selling items online and the popularity of search engines, it seems like a natural fit to create a Web site that searches online merchants for pricing information, finding the lowest price available anywhere. Unfortunately, it's not quite that easy. Each merchant lists its products a little differently, meaning it may be difficult to compare products. For example, some online merchants offer low prices but charge high shipping rates. This means the total price you pay for an item may not be the lowest possible price. Some merchants even lock out bots because they don't want their prices compared with prices at other shopping services.

To work around such inherent problems, a shopping service usually will set up contracts with dozens of merchants so it can use the merchant's pricing data and product information. Sometimes the shopping service will charge the merchant a fee for listing its products.

Most shopping services are contained entirely on the Web. Usually, you visit the Web site to use the service. However, a few shopping services are software packages that you must download and install on your computer.

Search & Find. To use the majority of shopping services, you visit a service's Web site and type keywords to search for or select the directory in which your product resides. Once you find the specific product you want or enter in your keywords, the shopping service will contact the Web sites of merchants, usually those with which it has agreements, asking for the price of the product in question. To speed up the search process, some shopping services will periodically pull product information from the merchants' Web sites and store the information at the shopping service's Web site.

Within a few seconds, the shopping service will collect a few to dozens of prices from various merchants for the product you want. If the product contains many variations, and you don't narrow your search criteria enough, you could receive returns for several variations of the product. Just make sure you're using similar products when comparing prices.

Once you find the product you want to purchase, you'll usually click a Buy button, which will direct you to the merchant's Web site to make the purchase. You'll no longer deal with the shopping service in most instances.

However, many shopping services receive a small fee for directing you to the merchant's site. One thing to watch for when using a service is the placement of your shopping results. As part of a service's agreements with merchants, it may give certain merchants preferred placement in its search results. This jeopardizes the independence of the service, and its credibility as a nonbiased service.

Time For A Change. In the past, shopping services and shopping bots have had several shortcomings, and some of the problems are still around today. They include:

- Missing some of the best prices. Because a shopping



service doesn't survey every online merchant, you might miss some of the best deals. On the flip side, having a shopping service that returns dozens of prices in a few seconds is better than you having to spend several hours searching various Web sites.

- **Returning jumbled results.** Early shopping services didn't let you sort results. Also, some services did (and still do) a poor job of narrowing the list of products they return.
- **Providing little, if any, product education.** Although the first shopping service could tell you the lowest price for a particular product,

they couldn't tell you whether that product would meet your needs, meaning you probably would have to do some additional legwork to find some product information.

- **Providing only a partial picture.** Some early shopping services focused only on the price of an item, ignoring key facts, such as shipping costs, shipping options, and the reputation of the merchant.

Although shopping services can do little about the first problem because of the sheer volume of online merchants, they have made great

strides in recent years in improving the other three problem areas. Most sites, such as mySimon (<http://www.mysimon.com>), now let you sort the results by almost any category you choose. They also let you easily narrow an already completed search by using additional keywords. Other shopping services now have a more narrow area of expertise, which usually lets them provide information from more merchants. Usually, this also means the users of the service will receive better results. Best Book Buys (<http://www.bestbookbuys.com>), for example, focuses entirely on books.

Top 10 Shopping Services

Here's a list of 10 of the best shopping services on the Internet, as well as an explanation of their focus areas. If you want a type of shopping service that we don't discuss here, visit the BotSpot Web site (<http://www.botspot.com/search/shopping.htm>) for a large list of shopping bots and services.

Best Book Buys

This site provides searches of more than two-dozen online book retailers to find the best prices on books. Searches even include some used books. The site also provides users with information on shipping costs and availability of the titles.

<http://www.bestbookbuys.com>

BidFind

This service searches several online auction sites for particular products that you specify. You can find auction items through a directory search or by keyword. Unfortunately, it may return results from several closed auctions.

<http://www.bidfind.com>

BottomDollar

This shopping service searches dozens of stores to find the best prices on several types of products, including books, clothing, food, magazines, computing equipment, and toys. Its results

include estimated shipping costs and estimated arrival time.

<http://www.bottomdollar.com>

DealTime.com

DealTime.com searches dozens of stores for thousands of products. The site also offers product reviews (from Epinions.com), detailed product information, and term definitions to aid in your product search. Merchant reliability ratings from Gomez Associates are available, too. DealTime.com has undergone a recent design change, making the site easy to use.

<http://www.dealtime.com>

Deja.com

In addition to its price-searching functions, Deja.com offers extremely strong product information and reviews. Experts in various categories are available for questions. Deja.com also collects ratings from visitors to the site about various products. You can perform a search by entering a keyword or browsing a directory. Search results include merchant profiles, estimated shipping costs, and product availability.

<http://www.deja.com>

Excite Shopping

This service searches dozens of stores for the best prices on several types of products. The

site previously was known as Jango. The searches aren't as easy to perform as at some of the other shopping services, though.

<http://jango.excite.com>

mySimon

You can easily perform searches for products in several main categories at this site. You can sort your search results by any of several criteria. In addition, mySimon offers information on estimated shipping costs and merchant reliability ratings from Gomez Associates. Another nice feature at this site is you can alter already completed searches.

<http://www.mysimon.com>

PriceSCAN.com

PriceSCAN.com lets users search for products in dozens of categories either by keyword or by directory. The site also offers some product reviews from site visitors and some graphs displaying the recent trend of the high, low, and average prices for the selected product. The site includes estimated shipping costs and estimated shipping times for some products, but it does not include merchant reliability ratings.

<http://www.pricescan.com>



At the WebMarket shopping service, you can link to merchant reliability ratings from BizRate to learn about merchants.

WebMarket

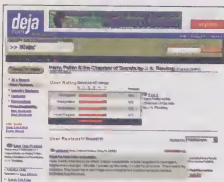
This site gives you the ability to search dozens of product categories for the best prices. You can perform product searches by directory or by keyword. The site also contains product reviews and product information for some products. However, WebMarket has teamed with BizRate to offer ratings of the merchants available through the shopping service.

<http://www.webmarket.com>

Yahoo! Shopping

Yahoo! Shopping offers searches through dozens of product categories, either by keyword or by directory. The site doesn't offer much beyond product and price listings, though. In addition, Yahoo! Shopping has incorporated ShopFind.com into its shopping service.

<http://shopguide.yahoo.com>



Deja.com is one of the top shopping services because it helps users find the best deal on a product through product reviews and information.

One of the best new shopping services, though, is Deja.com (<http://www.deja.com>), which provides a solid mixture of pricing information, product information, and reviews. Moreover, the product reviews are from customers and industry experts. In addition, as part of Deja.com's services, you can compare product information in a chart so you can base your shopping decision on the product's price and features. If you don't understand the function of

some product features, the site also includes definitions and consumer guides. Much of the product information is in pop-up windows that let you see the additional information without leaving the Web page you're viewing. Consumers who have already done their homework on a product can easily ignore the product information at Deja.com and move directly into price comparisons.

Deja.com's mixture of product and pricing information is handy and seems to represent the direction in which shopping services are heading. Deja.com also offers several personalization services that let you track any new information posted to the site about particular products. A similar service, is DealTime.com (<http://www.dealtime.com>). It has undergone a recent redesign and is showing great promise.

Another addition to most services in recent years is merchant ratings. Online shoppers often feel uneasy about making purchases online, especially if they are dealing with merchants about which they know little. However, when shopping services provide merchant reliability ratings from independent analysts, shoppers feel better about using an unknown merchant.

The Future. If you think shopping services are handy now, just wait. In the future, these services will be easier for shoppers to use.

Most experts envision shopping services evolving in one of two ways—or in both ways. One type of future shopping service will let you select a specific product, a price range, and a deadline date for making the purchase. The service then will continuously search for the product at the correct price or a lower one. Once it finds a product, it will notify you and let you finalize the purchase. You also will be able to instruct the service to automatically make the purchase once it finds a product that meets all your criteria. This idea is similar to how Priceline.com (<http://www.priceline.com>) works.

Another potential direction shopping services might take will be that of a negotiator. You will tell the service the product you want to buy, and it will contact dozens of online merchants, asking them to compete to sell you the item at the lowest price. Once the bidding process ends, the service with the lowest price will notify you.

Either way, shopping services will take advantage of artificial intelligence technology in the future so they can work more efficiently and meet your personalized needs. Some shopping services already incorporate some of these personalization ideas. For example, some of them remember choices you made in previous visits to better narrow and sort your search results. Of course, you also can expect shopping services to continue to expand their attempts to educate users, providing the information they need to make a smart decision, such as present services like Deja.com and DealTime.com do.

Shopping services certainly have evolved in the past few years, and they've grown into extremely useful tools. Someday, they also may become invaluable personal assistants in your shopping experience.

The Best Results. Unfortunately, we did not find a single shopping service that was the best. For the most part, services that focus on a single product category seemed to provide better search results than services trying to serve dozens of categories. In addition, use at least two shopping services—at least one that's product specific—when searching for the best prices.

You'll soon be wondering how you ever lived without an online shopping service... and Hollywood residents will have to find something else to make the remainder of the country jealous. **LS**

by Kyle Schurman

Comparison Shopping

Using one shopping service exclusively won't always guarantee you the lowest price available from an online merchant because each shopping service surveys different merchants. Here's a sampling of the best product prices we found (at the time of this writing) using different types of shopping services, including a popular online merchant that specializes in the product in question and a random local merchant (no shipping or sales tax costs included).

Book. "The Man Who Ate the 747," hardcover, by Ben Sherwood.
mySimon, \$9.50
Best Book Buys, \$11.95
Amazon.com, \$17.95
Local merchant, \$17.99

Book. "Harry Potter and the Chamber of Secrets," paperback, by J. K. Rowling.
Best Book Buys, \$3.77
mySimon, \$4.47
Local merchant, \$5.24
Amazon.com, \$6.29

Computer software.
Intuit's Quicken 2001 Deluxe.
mySimon, \$49.84
Deja.com, \$53.49
Egghead.com, \$59.95
Local merchant, \$59.99

Computer software.
Microsoft Office 2000 Standard.
mySimon, \$348.95
Deja.com, \$397.99
Egghead.com, \$429.99
Local merchant, \$449.99

Digital camera. Sony MVC-FD88 Mavica.
Amazon.com, \$599.99

Deja.com, \$647
mySimon, \$681
Local merchant, \$699.99

Movie. "Titanic" (1997), DVD.
Deja.com, \$19.46
mySimon, \$19.77
Amazon.com, \$23.99
Local merchant, \$24.99

Movie. "Titanic" (1997), VHS.
mySimon, \$14.38
Deja.com, \$19.30
Local merchant, \$19.99
Amazon.com, \$26.99

Toy. Swimming Champion Barbie.
Excite Shopping, \$10.97
Local merchant, \$14.99
mySimon, \$16.99
eToys, \$16.99



“Everybody :)”

With a Fujifilm digital camera, it has never been easier to capture, edit, download, e-mail and print out the smiles in your life. From the new, revolutionary FinePix 4700zoom and 40i to the easy-to-use, point and click simplicity of the FinePix 1400, Fujifilm has just the digital camera you're looking for.

Get the picture. With a Fujifilm digital camera. For information on prints, cameras, printers and on-line picture uploading and downloading, call 1-800-800-FUJIFILM or visit www.fujifilm.com



FUJIFILM digital

Get the picture

Reverse Auctions

Where The Lowest Bid Wins



Everyone is talking about Internet auctions. People are reliving their youth by finding great deals on items they thought had gone the way of the miniskirt and Manfred Mann. Other people are logging onto these auction sites and finding great gifts for their significant others, friends, or relatives without spending a small fortune.

When most people think of an auction, they imagine a large room with an auctioneer hawking various items to prospective buyers who wave placards with numbers on them each time a treasure sparks their interest. The online auction is not much different, although there is neither auctioneer nor large room. Interested parties congregate only in cyberspace. But the idea is pretty much the same:

someone has an item they want to sell and that other people are willing to buy. The seller puts the item up on an online auction and the hungry buyers start the bidding for the item. The higher the bidding goes, the better chance of a sale. That is, until now.

A New Kind Of Auction. The latest craze in online Internet trading is reverse auctions or "upside down" auctions. This technology is extremely hot right now because unlike the typical auction companies eBay or uBid.com, this is geared toward a buyer's market. This new version of the online auction has been around for nearly two

years, but has just gotten big in the past 12 months.

A reverse auction works something like this: an individual has an idea of something he or she is interested in buying; the individual visits a reverse auction Web site and defines what that needed item is by filling out a simple form; owners of such an item fight over who can sell it to the buying individual for the lowest possible price.

Unlike the traditional auction format, the seller is actually doing all the bidding on the item, not the buyer. The seller is bidding on the lowest possible price that he or she will offer to sell the item to the buyer who requested it. The lower the bid, the better the chance of a sale. All the competition is done among

the sellers so that the buyer can simply sit back and wait until the item is found and the right price tag is attached.

Win-Win Situation. The good thing about such reverse auction sites is that the consumer can locate requested items in a quick fashion because sellers are looking to make a buck. Once the consumer places a request for an item, messages are sent out to a database of potential sellers, and the sellers scramble to start the bidding. The buyer can choose any bid he or she wishes, and the buyer has the final say.

From a seller's point of view, reverse auctions are extremely targeted methods of selling. Sellers can sign up under specific categories for products and services that they have available to sell. Once a potential buyer places an online ad at a dedicated auction site outlining what the desired item is, the Web site sends a message about the lead to a database of sellers who fit the bill for having that particular item or service available. As the sellers in the database find that they do have that particular item or service on hand, the bidding begins.

When thinking of sales and leads, you probably get a picture of a salesperson behind a desk calling back on opportunities that a manager just handed to him or her. A seller for an auction site does not necessarily have to be a sales representative with a big company looking for sales opportunities. The seller on the other end of the e-mail message you just received could be a middle-aged father cleaning out his garage after he shipped off the last of his kids to college. It just so happens that you want that pair of size 8 roller blades that he has tucked away in the garage. Or maybe you are the one with hot commodity in-line skates in the garage that you are dying to get rid of.

What You Can Find. Like the traditional auction Web sites, individuals can find just about any item or service that they need at a reverse auction. Are you interested in a basset hound puppy as a Christmas gift for that special someone? Perhaps your six-year-old wants

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The online auction scene first gained notice in the fall of 1995, just as the Internet was finding its way onto the monitor screens of many homes and offices.

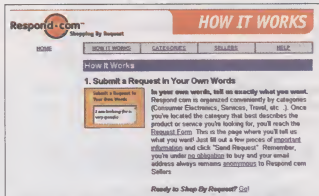
riding lessons. Maybe you are trying to locate a 1996 Yukon sport utility vehicle in candy apple red to trek across the country in. You are thinking that a rare Louisa May Alcott first edition of "Little Women" would be a wonderful anniversary present for your wife. Your folks are relocating to St. Petersburg, Fla. and you are helping them locate a small condo with minimal maintenance and two bedrooms, situated in a good area. The hard drive on your computer is ready to self-combust, but you are not interested in a completely new computer: just a new hard drive. All of these products and services are available from reverse auction sites, and you are free to list the price that you are looking for or offer to negotiate for the right price.

■ The Dawn Of The Reverse Auction.

The online auction scene first gained notice in the fall of 1995, just as the Internet was finding its way onto the monitor screens of many homes and offices. What better way to reach people and enable these cyber users to find the things they want than an online auction? Best of all, no one has to leave the house to find the right item.

Soon, more and more people were online looking for that rare baseball card or some form of collectible from their youth or for a rare CD or two. However, with the online auction came the chance that you would end up being outbid by someone else for an item that you really wanted or needed. Money stood in the way – if you did not have the right amount of cash, the item could slip away. That is, until now.

In 1998, a group of individuals began searching for a new screen to replace a broken one for a laptop. The laptop worked fine and it seemed pointless to have to buy a completely new computer for one simple screen that needed replacing. No screen was located and the individuals wracked their brains trying to think of a solution to this problem: how does one find a simple item online for the price that is affordable and reasonable?



Before you can begin requesting items on Respond.com, you have to fill out a short buyer registration form.

This simple issue led to the launch of eWanted.com in the fall of 1998 and the groundbreaking birth of the online reverse auction. The purpose? An individual (the buyer) could place an online ad at a reverse auction Web site, describing exactly the type of item that he or she was trying to find and place an estimated price tag on the item. Another person (the seller) would visit the site, read the description of the wanted item, and then find such an item and put it up for sale. The more sellers who had the item and started bidding, the better, because the buyer would have the chance to pick the exact price he or she would want to buy the item at. The best part about the whole deal? The price cannot be driven up because the sellers are actually lowering their prices to try to lure the buyer.

■ **Reverse Auction Sites.** If you are thinking that this type of auction sounds a little like the premise behind Priceline.com, you are partly correct. Priceline.com does allow you to name your price on such ticketed items as groceries, airfares, hotel accommodations, and the newest fad on the site—gasoline. But you are choosing your price on objects at a specific store, not enabling different stores to bid low for your business.

There are many sites devoted to the reverse auction. These include eWanted.com, iMandi.com, iWant.com, MyGeek.com, Ybag, BidTheWorld, NexTag.com, SimplyDone.com, and Respond.com. All of these sites are based

on the same premise: that the buyer has the upper hand because he or she waits for the right price to buy the product.

■ **How To Be A Buyer.** The sites are pretty much the same as far as the technique used to handle requests and bids. The first step as a buyer is to visit a site that caters to a reverse auction. Since the sites are designed to be user friendly and are set up relatively the same, we will use Respond.com as our test site.

Once on the site, you can use the list of categories on the home page to best define the item you are looking to buy. There are a vast number of categories, ranging from antiques to consumer electronics, to toys and hobbies, to travel. All of the categories are further divided into sub-categories. We clicked Antiques, and under Antique Art we chose Antique Maps & Prints. The next step after a category is selected is to complete a request form that describes from soup to nuts exactly what the sought after item is. You can give every detail imaginable to try and locate the desired product or service, including color, size, model, etc. (For example, we requested an original engraving of the Roman Forum, circa 1850.) You can choose whether you'd like to hear only from people who think they may have what you want or from anyone who believes she has helpful information on locating what you want to buy. Other information required on the request form is the buyer's e-mail address (so that potential sellers can send messages about bids), and the amount of time that the request should stay on the system.

After the buyer fills in the key information, the request is sent to appropriate sellers who may have the needed item. The sellers respond via e-mail to the potential buyer with the information that they have on the item. When the sellers send messages to the buyer, they include critical data about how they can be reached if the buyer is interested in purchasing the item. The buyer is given

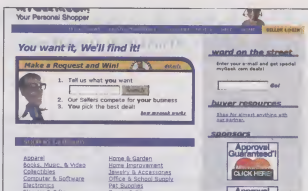
the option to either wait for more bids to come in or contact a seller directly about purchasing the item. The buyer can also contact the seller to find out more information about the product or service before he or she buys the item.

All buying of items is done strictly through the buyer and the seller. The buyer contacts the seller about purchasing the item and then arrangements are made between the two parties. Respond.com is uninvolved in payment.

Respond.com is firm in ensuring that its buyers remain anonymous until they decide to make a purchase. The only information initially divulged to the sellers is a buyer's e-mail address, but no other information, not even a name, is given out until the buyer initiates contact. Another key point to be made is the buyer should ask as many questions as possible about the item being purchased before an actual transaction is made.

How To Be A Seller. To become a merchant with an online reverse auction site, the seller begins by filling out a form that is posted on the site. At Respond.com, click the Seller link at the top of the home page to access the form. Sellers (or merchants, as some sites call them) are asked to detail which categories they wish to sign up for. These categories represent the items that the seller has for sale. Some of the online sellers have a broad spectrum of products to offer to buyers while others present a smaller, more targeted group of items that cater to a specific need of some sort.

The seller is advised that the only tool needed for communication with a potential buyer is e-mail. It is not necessary to even have a Web site. All feedback between the seller and potential buyers is conducted through e-mail. Leads are also generated through e-mail.



Looking for tape for your glasses or a pocket protector? At the reverse auction site MyGeek.com, buyers can place requests for items in a wide variety of categories.



Request bids on iWant.com aren't confined to tangible products. In the European Vacation section, you can make a request bid on a trip for two to London.

To be a seller on Respond.com, as with other reverse auction sites, there are monthly fees involved, although Respond.com offers a free trial period. The fees are dependent upon which categories the seller chooses. Some categories are not charged any monthly fees and are called, logically enough, Free categories.

The next level of categories is known as the Basic level. Sign up for as many of these basic categories as you want, and you will be charged a flat rate of \$9.95 per month. Other, more in demand categories, are called Select. Since they are highly desirable, the fee is a flat monthly rate of \$9.95 and then another \$9.95 per month per select category.

Respond.com and some other reverse auction companies offer a free 30-day trial period to new sellers. After the month of free membership is up, the fees apply. Another site, iWant.com, offers a few different merchant plans so that sellers can define which formula best suits his or her needs and wallet.

What's Next? Internet auctions have taken the online world by storm. In the past, to participate regularly in auctions you needed to be an antiques dealer or hobbyist with a good eye for deals at local estate sales. Nowadays everyone from college students to business people is visiting auction sites both for the sheer excitement of it and to locate needed services and products. Some of the best products, like computer parts and software, can be had as well as items from yesterday that catapult us back to our childhood. With the holidays fast approaching, this type of auction also offers a more convenient method of shopping.

While the eBays of the world seem to get all the fanfare, the reverse auction sites are coming into their own now that they are getting noticed. Such sites are expected to start gaining momentum as consumers realize

that the most bang for your buck comes from a reverse auction site. If there is a specific product you are looking for, the reverse auction site is the place to look because you will be able to find it without paying a hefty price.

In the next several months, reverse auction sites like eWant.com and iWant.com will impose competition on some of the kings of the auction scene like eBay and uBid.com. Salespeople are realizing that many people feel more comfortable with reverse auctions because they do not have to do any of the bidding, since the seller is doing the majority of the work. The more comfortable they are with these sites, the more buying they will do.

Whether it is that signed copy of John Grisham's latest novel or an antique Barbie watch for your little one, you may just discover that the reverse auction site is the shopping place you feel most at home. **[E]**

by Karen M. Spring

In the past, to participate in an auction you needed to be an antiques dealer or hobbyist with an eye for deals.

Buy & Sell Stuff At Virtual Garage Sales

Get Rid Of Junk, Find Bargains Online



can be tricky. If you must, you can search through the items alphabetically. This is a little clunky; under the letter G, for example, you might find a \$65,000 Power Station Generator as well as a \$10 golf bag. Instead, you might be better off performing a search on fields such as category or state. If you are a seller, you may choose to let uSell act as the holding agent for the funds. With certain restrictions, transactions made at this site are covered by \$200 of fraud insurance.

Garage Sales vs. Auctions. Online auctions are a tried and true way of buying and selling used merchandise online. Auctions allow users to easily locate a wide selection of the items they want to buy. Auctions can be exciting, but there are some notable drawbacks. For novice users, participating in online auctions can be a bit overwhelming. Even at one site, there can be several different kinds of auctions, each with different rules. In addition, the auction runs for an extended period, frequently as long as a week.

Although you place a bid with hopes that you'll be the highest bidder and that you'll be allowed to buy the merchandise, you won't know whether you've won the bidding until after the auction closes in a week or so. If you work for a living, you may not have the time or energy to sit around waiting for the end of the auction to try to sneak in a winning bid. Many virtual garage sale sites incorporate some of the features of online auctions that have proved to be quite popular and successful. If you've lost in online auctions more than once or if you have been too intimidated by the process to even place a bid, a virtual garage sale might be just the ticket for you.

If you can find what you're looking for, real garage sales are great. Once you find an item you want, you ask what they'll take for it or they'll tell you what they want for it. Perhaps you will haggle over it a bit, if that's your nature. You pay for it and take it home. There's no waiting around to see if someone else will outbid you. One problem with real garage sales, however, is that if you are looking for a specific item, you could drive around for a month of Saturdays and never actually find one for sale.

Virtual garage sale sites combine the find-it-now convenience of an online auction with the get-it-now appeal of real garage sales. If you locate an item you want, you have a good chance of being able to purchase it. And just as you can at real flea markets, you can

Picture this. It's 6 o'clock on a cold Saturday morning. While garage sale entrepreneurs all around town are dragging themselves out of bed to tape price tags to boxes of bric-a-brac, you are snoozing away, dreaming of all the fabulous things you're going to do with the cash you're expecting for the stuff you just sold online. Sounds like a dream, right? Old-fashioned garage sale aficionados as well as online auction devotees might be pleased to discover the newest way to buy (and sell) their stuff—the "virtual" garage sale.

Online Classified Ads Grow Up. Traditional classified ad Web sites, which have been around for a while (such as e-Classifieds at <http://www.e-classifieds.com>), allow you

to buy and sell used items. Like their low-tech (newspaper) counterparts, they also carry real estate, employment listings, and personal ads. Generally, in exchange for registering at sites such as these, you are eligible to place a free advertisement.

A small site that is a step above old-style classified advertising is uSell (<http://www.usell.org>). This service does not charge a commission for selling your merchandise. You pay just \$1.99 for an advertisement that runs for three weeks. You can include a photo of the item for free if you have your own Web page. (Just provide uSell with the URL where your photo is stored.) If you don't have your own Web page, send a digital photo and uSell will store the photo on its site for a small additional charge. Finding something to buy

sometimes find new merchandise as well as like-new and used products.

■ **Perfect YardSale.** Priceline.com, a site you may know as the "Name Your Own Price for Airline Tickets" site, has recently launched a venture called the "Perfect YardSale." (<http://perfectyardsale.priceline.com>).

You don't need to create an account first in order to get started at the Perfect YardSale. The first time you make an offer (to buy or sell) the site will create a secure profile based on information you give. Once you have used the site, be sure to sign in whenever you return. As you explore the site, follow the Help link at the bottom of each page for detailed answers to frequently asked questions.

To get started shopping, click the Buy button. To browse by category, click one of the main links such as Computers and Office or one of the smaller links under the main category such as PDAs. If you select the PDAs category, you'll be presented with two categories of PDA devices: Palm Pilot and Windows CE devices. If you need more information to make a choice, click the Help me decide link to display a buyer's guide. After you've had an opportunity to peruse the buyer's guide, click the Previous button to return to the PDA List. Click the Palm Pilot link to display several price ranges. Select the appropriate price range. Enter your ZIP code so it will find the items that will be most convenient (geographically) for you. Click Next to start the search.

If the search engine finds any items for sale meeting your criteria, they will be listed along



While throngs of bargain hunters are out driving from neighborhood to neighborhood with the garage sale section of the newspaper draped across their laps, you can browse attics across the country without ever leaving the comfort of your computer desk, using a garage sale site.

with a brief description, if a description is available. Click Name Your Price to start the purchase process.

After you've made the decision to buy the item, the screen will display several prices that represent the price range associated with the item in question. The prices you have to choose from are based on the sales history of similar items. Select the price you are willing to offer. Obviously, the higher your offer, the more likely it is that you will be able to get it. If the price you want to pay is not listed as an option, click the I want to name my own price link. Enter your e-mail address, your name, and your shipping address. If the seller accepts the price you name, the seller will ship the item to the address you provide.

You'll need to provide credit card information whether you want to buy or to sell an item. You must use one of the four major

credit cards (or a debit card endorsed by a major credit card company). Although you won't be charged sales tax, some states collect sales tax on Internet purchases so you'll want to investigate what is required in your state. The buyer pays for shipping (unless a free shipping offer is in effect). Only after you receive the item and approve it does Priceline actually pay the seller for the merchandise.

Priceline offers a seven-day money-back guarantee (for cases where the item was misrepresented on the Web site) as well as a 30-day repair warranty. If the item breaks from normal everyday use during the first 30 days, the warranty covers the first \$250 of repair costs (not to exceed your purchase price). Keep in mind that you cannot make more than three warranty claims per calendar year, totaling no more than \$500. Because warranty and guarantee details may change, be sure to read all of the details concerning any transactions you decide to make online.

Selling an item. From the main page, click the Sell button and follow the steps as they are presented to you. First, tell Priceline what you want to sell. Type in a short description of the item or start by clicking a link for one of the many categories. Items are grouped in categories such as Computers & Office, Electronics & Photo, or Toys & Games, for example. Say you have a notebook computer you want to sell. Click Computers & Office. Under Computer Systems click Notebooks and then Notebook PC. Next you'll need to answer a few questions about the functionality of your merchandise and whether all required accessories come with it. You'll also need to rate its

In Pursuit Of Bargains: Planning Your Yard Sale Itinerary Online

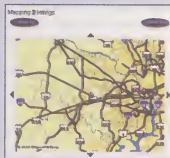
Several Web sites help you locate actual yard sales in your area. In some cases you can preview photos of the merchandise.

- For the best of both worlds, visit GarageSaleHomePage.com (<http://garagesalehome.com>), which prides itself on being "the home of no-auction trading." In addition to searching for items

listed for sale by registered users, you can also search for non-cyber yard sales at this site.

- After browsing the classified and want ads at G-Sale.com (<http://www.gsale.com>), search for old-fashioned garage sales by state. Once you find a promising sale, print out detailed directions or follow a link to print a map.

- At Yardsales.com (<http://www.yardsales.com>), search for local bargain-hunting opportunities including antique sales, estate sales, thrift shops, and rummage sales. You can even print out a map highlighting selected yard sales to help make your weekend excursions more efficient.



If you're not an online shopper, at Yardsales.com you can print a map highlighting selected yard sales you'd like to attend.

appearance (like new, very good, good, lots of wear and tear, or unknown). You'll need to specify a brand and indicate the quantity you have to sell. This enables the system to provide you with more accurate pricing history information for items of similar quality. Finally, you'll specify the computer's processor speed and RAM (random-access memory), your ZIP code, as well as an optional description.

If you aren't clear on some of the technical terminology, there are a couple of Need Help links. While it seems like a very thoughtful and convenient feature, don't get too excited. If you click the RAM link, it advises you to "contact a local retailer or the manufacturer" if you need assistance in determining the amount of RAM in your system.

After you've entered all of the required information, you are offered a range of prices to choose from, based on what similar items have sold for in the past. This helps you to set a fair price for your item. The system advises you that if you set your price on the low end of the scale you'll be more likely to sell your item, while if you set a price on the upper end, you will find selling it to be more of a challenge.

How does Priceline get paid? Sellers pay a small service fee to list an item on the Perfect YardSale Web site. In addition they pay a commission when the item sells. For most items (those selling for \$15 to \$300), the commission is 10%. If your item sells for more than \$300, there is a flat \$30 fee. No sales tax is added to the sales price.

After you've listed your item and named your price, the Perfect YardSale starts looking for a buyer. You can halt the search at any time by visiting the Your Offers area on the home page, selecting Show me the status of all my offers, and withdrawing your offer. If a buyer is found, the buyer's credit card will be charged. After the buyer receives the item, the amount of the sale (minus the commission) is credited to your Perfect YardSale Cash Card (basically an ATM card with a PIN), which you can use at any ATM (or Western Union outlet, grocery store, or gas station) that displays the MAC or PLUS logo.

■ **Half.com.** Half.com (an eBay company) is another virtual garage sale site. However, it is more specialized than most. It's designed exclusively for peddling books, music, movies, and games. You will need to register to become a member. If you're selling, the

In the future we may see even more garage sale sites that specialize in certain areas, such as baby items or tools.

commission rate is 15%, regardless of the selling price of your item. Another difference is that Half.com actually mails you a check plus an allowance to cover your shipping costs. If you're buying, use their search engine to find the items you seek or simply browse through the store by category.

sites of online book and music retailers such as Amazon.com and Borders.com.

■ **What's Next?** Just as Half.com specializes in books and music, www.musiciansbuyline.com specializes in used musical instruments and equipment. Another site, Surplus HomePage.com (<http://www.surplushomepage.com>) serves the business community by facilitating business to business (and business to consumer) sales of industrial surplus and reusable equipment.

In the future we may see even more sites that specialize in certain areas, such as baby items or power tools, for example. These types of sites will be natural candidates for generating advertising revenue. The sites that win out will be the ones that instill buyer confidence through warranties and guarantees, make it simple for buyers to find what they want, and make it easy for sellers to get their money.

The global garage sale. Regular online auction participants may be aware of Web sites that can search several different online auctions. In the future we may be offered a similar service for virtual garage sales. You could specify what you are looking for and automatically search a collection of the biggest virtual garage sale sites.

Wireless notification. The race toward integrating wireless communication devices with all sorts of Internet technologies appears to be heating up. As a result, it is easy to imagine that we might see some of these technologies applied to virtual garage sale sites, as well. For example, suppose you are searching for a used laser printer in a certain price range, but none are currently available. As soon as one is listed with your specifications, you could receive a notice on a handheld device and you'd be able to send a message confirming your offer to buy it. We're not there yet, but if these sites prove to be popular, it's just a matter of time. **[E]**

by April Hardison Boud

Choose your price range

You'll always get a lot for your money at Perfect YardSale. What price range do you want to browse?

- ☐ \$43-\$175
These fully functional items tend to have fewer options and features.
- ☐ \$175-\$300
These items are usually brand new in good condition and may come with some extra features.
- ☐ \$375-\$425
Typically, these items are premium brands that may include special options or features and are in very good condition.

NEED HELP?

about Palm Pilots
Information at your Superduper Palm Pilots are easy-to-use, handheld devices for taking notes, recording addresses and managing schedules.

Already know what you're looking for?
[Search our own database](#)

What is your ZIP code? (so we can find Palm Pilots near you)

At Priceline's Perfect YardSale, you can search for items such as Palm Pilots by price range.

half.com

Search that finds you the best deals on the web

Join our team: [Join our team](#) [Join our team](#) [Join our team](#) [Join our team](#) [Join our team](#) [Join our team](#)

Need to find a car? Sign up now!

Half.com is the best place to find a car. We have the best deals on the web. Sign up now and we'll send you a list of the best deals on the web.

Half.com is the best place to find a car. We have the best deals on the web. Sign up now and we'll send you a list of the best deals on the web.

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If you have things you'd like to sell, becoming a member of the garage sale site Half.com is easier than hosting the real thing.

Half.com has a shopping cart feature, which makes it easy to buy several items. Be sure to check the ratings of sellers who have a track record at the site.

One nice feature at the Half.com site is the Wish List. If no one is currently selling an item you want, just add it to your Wish List. Later, if someone does list the item for sale, you'll receive an e-mail notification.

If you must have it now but you can't seem to locate the item used, you may choose to use the Half.com shopping engine to comparison shop for new merchandise at the

Online Eats

Use The Internet To Order Your Next Meal



You've spent all day saving megabytes of files to your multigigabyte hard drive and worrying about how fast your network is transferring kilobytes of information when it hits you. You haven't had a bite to eat in hours. The fact is that many people today are working longer and stranger hours tied to their computers, and squeezing meals into that time is getting more difficult. Often, a "meal" is anything you can get out of the vending machine and eat at your desk. However, the answer to your culinary quandaries may be cooking right in front of you.

Although online shopping has been successful in such arenas as books, clothing, and music, it has yet to gain the same nationwide momentum when it comes to selling fast food. Ordering food has a much greater sense of immediacy; after all, if you're hungry you don't want to wait two days to get your meal.

As a result, many companies and services are partnering with local restaurants to figure out how to address the "last mile" problem of food delivery.

■ **The Old Standby.** Pizza restaurants have long held a virtual monopoly on food delivery. In fact, finding a large pizza chain in your neighborhood that doesn't deliver is pretty difficult. However, it's a different story when it comes to ordering pizza online.

We checked a number of pizza restaurant chains, including Domino's Pizza, Godfather's Pizza, Little Caesars, and Pizza Hut, and none offered its own national online ordering system. Keep in mind that we were looking for a nationwide ordering service at each restaurant's home page; you may be able to get pizza delivered if your local pizza franchise is partnered with a service such as Food.com or

Waiter.com (see below). Pizza Hut put its own online ordering through a trial run in the Topeka, Kan., area last year, but as of July 1, 2000, the company is no longer offering the service. If you happen to live in the United Kingdom, you can order Domino's online from its site (<http://www.dominos.co.uk>), but those of us on the other side of the pond who want to order straight from Domino's on the Web are out of luck.

Papa John's (<http://www.papajohns.com>) is the only national pizza chain we found that offers nationwide online ordering in the United States. (Food.com operates Papa John's online ordering service, so you'll want to read more about that company below.)

To get started, click Order Online Now on the home page. You can either click one of the boxes on the next page or click the Click Here link to fill out the order form. On the next page, you'll see a simple three-step process where you'll enter your name, address, and if you select take-out service, how far you're willing to travel to pick up your pizza. Fill in this information and then click Order Online to continue.

On the next page, you'll also see a link you can click to become a registered Papa John's member. If you do so, you'll be able to designate your "usual" order and review your orders for the past six months. Papa John's also will send you promotional e-mails if you choose.

After you click the Order Online link, you'll see a page that shows you the Papa John's restaurants in your area and if they are open at the time you're at the site. Pick the closest one to continue with your order. On the next page, you can select one of Papa John's specials, or you can open the Select A Menu drop-down list to create your own pizza, order one of the specialty pizzas, or order sides and drinks. As you make your selections and click the Add To Order link, you'll see your total add up on the right side of the page. Under the total, you'll also see options to select your delivery or pickup time, as well as information about what kind of payments Papa John's accepts. Click the Check Out link and then the Submit Order link to place your order.

According to Papa John's site, there are more than 2,345 restaurants in 47 states and five international markets, so the odds are pretty good you can get a pizza delivered to you.

■ **A Buffet Of Choices.** If you're really not in the mood for pizza, you'll find more options

at Food.com (<http://www.food.com>) and Waiter.com (<http://www.waiter.com>). Both services have partnered with local restaurants in a variety of areas so you can order prepared restaurant meals online, either for delivery or takeout. How large of a city you live in will determine the number, if any, of restaurants that work with each service. As with most things, the larger the city, the more choices you'll have.

Food.com. This site is the McDonald's of online food ordering. With more than 17,000 partner restaurants nationwide, Food.com will probably cover you if you live in a large- or medium-sized market. Some of Food.com's corporate partners include Chi Chi's, Denny's, Domino's Pizza, Pizza Hut, Popeye's, and Red Lobster.

Look for the Order Meals Online section at the top of the Food.com home page. Like the Papa John's site, you'll see a three-step process for placing your order: enter your address, select whether you want delivery or takeout, and indicate how many miles you're willing to travel if you want to pick up your food. To test the site's scope, we entered a San Antonio address and asked for restaurants that delivered. (According to the U.S. Census Bureau, San Antonio had a 1990 population of 935,933 people).

Food.com returned a list of seven restaurants. We chose Nadler's Bakery & Deli and saw what it had to offer by clicking the View Menu link. Obviously, the menu for each restaurant you choose will be a little different, but you'll always see the item's cost next to its listing or description. Click the menu item to see all your ordering options, including entrée size, sides, and dressings. Once you've customized your order, click the Add To My Order button at the bottom of the page. The site will then return you to the restaurant's menu page where you'll see your total in the column on the right side. If you're placing an order for delivery, the restaurant may require a minimum order, so this is a good way to see if you're close enough.

Below the total, you'll also find options for reviewing or editing your order and setting the delivery time. In the Restaurant Info box, you can see the establishment's hours of operation and what kind of payment it accepts. If everything looks OK, click the Continue To Checkout button. You'll get one more chance to review your order and check your total on the next page. After that, you'll need to specify your payment method, and if you have any special delivery instructions for

How large of a city you live in will determine the number of restaurants that work with each service. As with most things, the larger the city the more choices you'll have.

the driver, you can enter those in the Special Instructions field.

Waiter.com. This service is similar to Food.com, but it's a little more limited in terms of the number of restaurants. Waiter.com offers service for more than 1,300 restaurants nationwide, including such corporate heavyweights as Boston Market, Chili's Grill & Bar,

in which service is available. We clicked San Antonio and clicked the one restaurant listing offered, Chili's Grill & Bar. The next page will give you a description of the kind of cuisine the establishment serves; a Menu link so you can view and order from the menu; the restaurant's location, which includes a link to a map; and information about whether it has takeout, delivery, or "sitdown" service. Unfortunately, this particular Chili's does not deliver in the San Antonio area.

We clicked Menu, and then clicked the Click Here To Place An Order link on the next page. This took us to a page that showed Chili's operating hours and its complete menu with prices. We selected items from the menu, entered the quantities we wanted, and then clicked the Add To Cart button. After reviewing our choices, we clicked the Checkout button. If you hadn't entered your username and password yet, you'll need to do that here.

Next, you'll select whether you want the order for takeout, sitdown, or delivery (if available). You can then designate what date and time you want the order prepared for, enter any special requests, alert the restaurant if you're using a coupon, and input your present contact information if it is different from your registered profile. Once all that is entered, click Continue Checkout. On the next page, you'll get one more chance to review your order; if it looks good, click the Click To Send Now Button.

Point, Click & Eat. Although we've given you a few options you can explore for ordering food online, you may have more luck checking around with your local eateries. Local establishments have an easier time processing immediate orders, so it may be easier for you to go straight through them. The next time you stop in, ask the management or see if a Web address for ordering is on a takeout menu. Whichever way you go, you'll be eating better in no time. **LE**

by Dan Spellerberg



Food.com tracks the cost of your order as you pick items from a restaurant's menu.

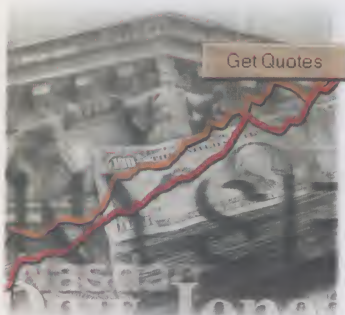
and The Olive Garden. Like the choices at Food.com, some of the restaurants deliver, but not all.

Although Waiter.com's service has fewer restaurant choices than Food.com, it does have a neat feature called Waiter.Points. For every dollar you spend at Waiter.com, you earn 100 Waiter.Points that are redeemable for gift certificates from participating restaurants and movie theaters, and even special Waiter.com merchandise, such as T-shirts and windbreaker jackets. If you order enough to accrue 1 million Waiter.Points, you'll earn a free DVD player. Waiter.com will register you for the program the first time you place an order.

To find food, click the Order link on the home page. This will take you to a U.S. map to choose the state in which you live. We'll stay in Texas and click the Lone Star state on the map. On the next page, you'll see a list of cities

Online Investing

Wireless Access & After-Hours Trading Give You Even More Control



According to an increasingly heavy rotation of TV commercials, your stockbroker is a dinosaur. The new investment landscape is populated by free-wheeling day traders who make their financial killings from sunny beaches, with a notebook PC in one hand and an umbrella drink in the other. One day, archeological expeditions will uncover the brick-and-mortar remnants of yesterday's investment firms, long buried in the strata of pre-Internet earth.

The truth is, it's a bit early to go fossil hunting just yet, but an evolutionary shift does appear to be underway. Web-based discount brokerages, such as Ameritrade (<http://www.ameritrade.com>), E*TRADE (<http://www.etrade.com>), and Datek Online (<http://www.datek.com>) let users place their own buy and sell orders online. Online investment sites are luring ever-greater numbers of independent-minded investors away from the higher sales commissions commanded by traditional full-service, real-world brokerage firms. Meanwhile, many of those traditional full-service brokerage firms, such as PaineWebber (<http://www.painewebber.com>), CharlesSchwab (<http://www.eschwab.com>),

and Merrill Lynch (<http://www.ml.com>), have responded to a surge of client interest with online trading services of their own. Elsewhere, a veritable battalion of specialized Web sites offer their own tools designed to keep you on top of the market at all times.

According to Forrester Research, two-thirds of all U.S. retail investors, which is approximately 21 million households, will be trading securities over the In-

ternet by the year 2005.

But in the meantime, the new breed of online trading services is continually evolving, too. We'll take a look at a few of the ways you can prepare for tomorrow by getting the most from today's online investing resources.

■ Real-Time Quotes. If the inside of your head sounds like a noisy trading floor during market hours, you're probably the type of investor who considers three minutes ago ancient history. You need your price quotes, and you need them now.

Online brokerage services routinely offer some type of real-time quotes. Ameritrade, to use just one example, provides unlimited real-time quotes to registered users for an extra \$20 per month, and you get 100 real-time quotes on the house when you open your account. Requesting real-time quotes is a snap using SnapQuote, a ticker bar that appears at the bottom of each Ameritrade trading page. Just type the symbol of the security you're tracking into the window, click Find Symbol, and SnapQuote serves up-to-the-second quote

information, such as price, change, bid, ask, and volume.

Other specialized Web sites, such as FreeRealTime (<http://www.freerealttime.com>), offer free, unlimited real-time quotes. At FreeRealTime you need to register for a membership; it's one more username and password to remember, but at least it's free.

If you want real-time quotes and you want to keep 'em coming, check out Data Broadcasting's My eSignal (<http://www.mysignal.com>). For \$29 per year, My eSignal lets you monitor real-time quotes and volume information for up to 20 stocks simultaneously via a streaming ticker window that appears in your Web browser when you log into your My eSignal account.

■ After-Hours Trading. Sometimes it's the late bird that gets the worm. That's why a number of online brokerage services now offer after-hours trading.

After-hours trading is made possible through a third-party system called an ECN (electronic communications network). Normal trading hours for the Nasdaq Stock Market and the NYSE (New York Stock Exchange) are from 9:30 a.m. to 4:00 p.m. EST. But ECNs make it possible to buy and sell for a period of time after the rest of the market has turned out the lights and gone home. An ECN uses a computer network to match, buy, and sell orders. If you're looking to buy a stock at a certain price, for example, and somebody else on the network wants to sell that stock at that price after hours, the ECN can automatically match the orders and complete the transaction.

E*TRADE, for example, offers after-hours trading through the Instinet ECN from 4:05 to 6:30 p.m. EST each trading day. Your cost per trade is the same as it is during normal market hours; the only catch is that you can enter only limit orders (orders which set the highest price you are willing to pay for a buy order or the lowest price you'll accept for a sell order) in round lots, or standard blocks of 100-share increments.

You'll need to read and sign E*TRADE's after-hours trading disclosure agreement before you can begin trading after hours (<http://www.etrade.com>; click the Quotes & Research tab, scroll to After-hours, and click). Once you've filled out the paperwork, placing an after-hours order is simply a matter of clicking the Enter After Hours Order option under the Trading tab of your E*TRADE

Some online brokerages cater to the wireless set, letting users access quotes and make transactions with devices such as the Palm VII.



account page and submitting your order as normal. You must be a member to access this page.

■ **Wireless Trading.** Just because you need to tend your online portfolio doesn't mean you need to tether yourself to a telephone line. On-the-go types can buy and sell online from anywhere a PCS (personal communications services) phone can go. Next time you see somebody on the sidewalk cheering into a Palm VII handheld organizer, or smashing it to the pavement, you may be observing an investor set up for wireless trading through Schwab, DLJdirect, Ameritrade, E*TRADE, or any number of the competing online brokerages that offered wireless accounts at press time.

There are a number of wireless accounts available for a variety of hardware devices. DLJdirect (<http://www.dljdirect.com>), for example, offers its DLJdirect Anywhere

wireless service for a variety of wireless devices. DLJdirect users who sign up for DLJdirect Anywhere service can access price, news, and research through an alphanumeric pager, digital/PCS cell phone, or PDA (personal digital assistant) based on the Palm Computing or Windows CE platforms. Depending on the service to which you subscribe, you also can place trades, get quotes, and access your account information through your PDA, Web-enabled cell phone, or two-way pager. It is free to set up a wireless DLJdirect Anywhere account, and wireless trade orders are subject to the same commission rates as standard orders.

To establish a DLJdirect Anywhere account, point your Web browser to DLJdirect's home page and click the Wireless Center button at the bottom of the column on the left side of the Web page. A pop-up wizard will then take you through the required steps for the wireless device you use.

How To Invest Online

With online brokerage services now numbering in the triple-digit range, selecting the right site can seem as daunting as choosing a daycare for your firstborn. If you are approaching the online investing arena for the first time, consider these five general rules-of-thumb when deciding where to send those commission fees.

Know your needs. Maybe you're the die-hard, do-it-yourself type, dogged about research and confident in your own financial decision-making abilities. Or maybe the thought of tossing your hard-earned dice into the Wall Street carapace without consulting an experienced professional gives you the vapors. There are online investment services that cater to both extremes and investment personalities in between.

In general, online brokerages fall into two categories: discount brokerages that offer online trading at the lowest-possible commission rates and full-service

brokerages that offer a sophisticated range of professional consultation services at a higher premium. There are enough variants within each category that the two meet somewhere in the middle. A bit of careful advance self-scrutiny will help you determine which category of service will best suit your needs.

Make sure they're selling what you're buying. Not all online brokerage services deal in all types of securities. Discount brokerages in particular often come with limitations concerning the types of trades you can make for that low-low commission price. Many online brokerages deal in corporate stocks. But if you want to branch out into such things as government bonds and mutual funds, you'll need to make sure that the service you're considering offers all the securities you wish to buy and sell.

Check the record. You will find a number of finance-related Web sites that have devised

sophisticated and comprehensive systems designed to rank online brokerage services according to category, fees, and overall reliability. Among our favorite sites that offer such rankings are SmartMoney.com (<http://www.smartmoney.com/si/brokers>), CyberInvest.com (<http://www.cyberinvest.com/guides/brokers.html>), and Gomez Advisors (<http://www.gomez.com>). A bit of compare and contrast using such online scorecards can pay off in the end.

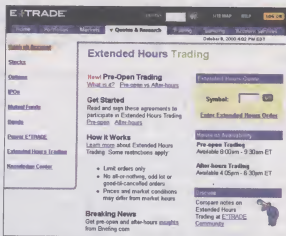
Bottom dollar vs. bottom line. Sometimes, the commission you pay for a securities trade isn't the end of the story. Many online brokerages levy additional fees for annual use, late payments, transfers, and the like. Some brokerages also tack on additional transaction handling fees for every trade. Make sure you carefully peruse the fee schedule posted on the brokerage's Web site before you sign on and begin playing the markets.

Always be prepared to call for backup. It doesn't matter if you're a casual investor or the fiercest full-time day trader. If you decide it's time to pull the trigger and bag yourself a particular stock that has finally wandered within your range, you don't want to be impeded by such pesky obstacles as network traffic and Web server infarction.

But a high-volume market day can plague online brokerage services small and large alike. Under the eggs-in-one-basket warning, you might find it's an excellent idea to maintain accounts at more than one online service. If your primary broker bogs down, or, horror of horrors, crashes altogether, you'll be able to tap the market through your backup service. Check with the services, however, because you may have to maintain a minimum balance to make trades. □

Fractions Of Fractions. Investment philosophy has come to embrace the idea that investors can save piles of cash over the course of a trading year by "trading decimals," or by placing limit orders in one-cent increments. If you are playing the limit order game yourself, you stand to increase your competitive clout by getting on the road to trading decimals as soon as possible.

When investors compete for securities using limit orders, identical bids are won or lost on a first-come, first served basis. Until the SEC (Securities Exchange Commission) mandated that exchanges and brokerages convert from the traditional fraction system to a decimalized system, investors had been limited to increasing these kinds of bids in fractional increments, such as 1/16th of a dollar (6.25 cents). An investor who is able to



If regular trading hours don't give you enough time to complete your transactions, take a look at E*TRADE's Extended Hours Trading for information about after-hours trading.

"trump" an existing bid using an increment of one cent, then stands to save a few pennies on the deal. Over the course of a year, those

by Sean Doolittle

pennies can add up to an appreciable savings.

An increasing number of online brokerages now offer decimalized trading. In July 2000, Datek Online became the first major player to offer decimalized trades of NASDAQ securities. Shortly before press time, the company expanded its decimalized trading service to include 100-plus stocks listed in the NYSE and AMEX exchanges.

So get out there and make some money. Pay low commissions. Keep your portfolio with in reach of your mobile phone. Track the markets in real time and stay after hours if you like. And remember that the phrase "a penny saved" was coined for a reason. **[E]**

Opening Your First Account

If you're just taking your first steps into the online investing arena and you've never used an online trading service before, the start-up process may seem daunting at first. But opening a basic account with an online brokerage is relatively simple. Most online services like Ameritrade (<http://www.ameritrade.com>) or E*TRADE (<http://www.etrade.com>) employ a similar registration process. We'll walk you through the major steps that will get you on your way to your first online trade.

Establish an account. The first step between you and your initial online stock purchase is to establish an active account with an online brokerage. Most online brokerages supply prominent links to the required registration forms on their home pages.

These forms require all of the standard personal information, such as your name and address, occupation, income level, and the like. Here, you also will select the confidential

user ID and password you'll use to access your account.

Next, you'll need to answer a few questions about the type of account you wish to open. The options here can get confusing, but most sites provide a glossary of terms that will help you define your needs. If you're a beginning investor, you'll most likely be opening an individual cash account, which works like a debit account at a bank (you deposit a certain amount of cash in the account to fund the purchase orders you submit online). More sophisticated investors may opt for a margin or option account. If you don't know what a margin or option account is, odds are you'll want to get your feet wet with an individual cash account until you're ready to investigate them further. Consult the help areas of your service's Web site or other finance-related sites, such as Cyberinvest.com or SmartMoney.com, to learn more about how different types of accounts and transactions work.

Most online brokerages also offer the option of establishing some type of group account, which lets you trade securities as part of an organization such as a corporation or investment club.

Supplying funds. As part of the sign-up process, you'll need to indicate how you plan to cover your purchases. Many online brokerages require a minimum initial deposit for cash accounts, often in the \$1,000 range. Most brokerages, online and otherwise, require payment for securities purchases within three days of the transaction (T-3). Some online services allow investors of a certain profile to begin trading on credit, but most require the money be in place before you place orders.

You can accomplish this portion of your startup requirements by mailing the service a check or money order in the amount with which you intend to begin. Many sites also let you authorize a direct deposit from your bank account or transfer existing

securities from another brokerage account.

The final paperwork. Before you can enter the world of cybertrading, you'll need to rely on good old-fashioned paper and ink to complete your registration process. According to federal law, you must supply your broker with a your original signature, or a copy of your signature, before the broker can place buy and sell orders on your behalf. So you'll need to send a signed hardcopy of your registration form to the brokerage service, either by fax or mail.

It generally takes a few days for the service to process your application. When all is complete and the funds are in place, the brokerage will send your account information, along with the PIN (Personal Identification Number) you'll need to access your new account, to your real-world mailing address.

Once the parcel lands on your stoop, you'll be set to log on and trade away. **[E]**

Keeping You Posted

Sites That Round Up The News For You



will find a digital replica of these papers' front-page articles and of most of their news sections. These sites, however, will not let you customize which news items you want to get. For example, if you wanted to see news only about science, politics, and world affairs, you can't get it all on the same page. You would have to go to the various sections of the site to find all of these news items.

CNN's Web site provides frequently updated stories in a

variety of sections, including World, U.S., Technology, Food, Sport, Business, and Arts & Style, among others. There are now two editions of the CNN Web page: CNN.com, geared toward the United States, and CNN.com Europe (<http://europe.cnn.com>). You can choose which edition appears by default when you enter cnn.com in your browser.

CNN went a bit further than many traditional news providers in the realm of news delivery by creating e-mail lists that let you receive specific news items right in your mail account. By going to <http://www.cnn.com/EMAIL> and entering your e-mail address, you can select which news items you want to receive. For example, you may want to receive only items about politics and space science, so you would only select these two items on the page. This is a simplified version of the "My Web Page" concept, applied to e-mail.

News can be found on many sites and in many formats on the Internet. Standard news sources such as CNN, ABC, *The New York Times* and *USA Today* all went online and created their own news sites a few years ago. More recently, a new phenomenon has begun and is gaining popularity: the concept of personalized news channels. A personalized site lets you to dictate to the site what you want to see, and when you want to see it. Sites such as AOL and Yahoo! offer My Yahoo! and My AOL options that let you customize the news displayed on the Web page.

Another kind of service, offered by InfoBeat and others, delivers daily news bulletins to your inbox, covering news categories you've selected. Explore the options to find the news delivery method that best suits you.

■ Print & Broadcast News Online. The standard way to get news on the Internet is to go to the Web site of your favorite newspaper or news channel, such as <http://www.usatoday.com> for *USA Today* and <http://www.nytimes.com> for *The New York Times*. There you

■ News By E-mail. E-mail news services seem to be springing up everywhere, each promising to keep us up-to-date without causing information overload. The advantage of these services is that they deliver stories in

categories you've chosen—and therefore stories you're probably interested in—to you. One possible disadvantage is that if you subscribe to too many or don't keep up with what are usually daily mailings, you'll soon find your inbox flooded.

NewsEmailer (<http://www.newsemailer.com>) is one such e-mail service. The service is similar to CNN's e-mail service, but provides news from multiple sources, and instead of the entire news story, you'll get only a summary version, with the option to read the full story simply by clicking the title link.

The Information mailing option lets you choose stories from two categories, Business and Society, which are broken down into subcategories including Aviation-Aerospace, Technology, Health, Education, and Justice, among others. You can choose three of these subcategories total and will receive ten daily stories drawn from NewsEmailer's "exclusive sources."

Another e-mail news service is InfoBeat (<http://www.infobeat.com>), which boasts more than three million subscribers. InfoBeat offers two daily mailings, the Morning Coffee Edition and the Afternoon Edition. Subscribers can opt for one or both, and there is an option to receive emergency alerts on particularly important breaking news.

In News, you can choose to receive reports in categories including U.S. Front Page Stories, Europe & Russia, Africa, India & The Middle East, Crime & Catastrophe, The Courts, Technology, Human Interest, and the Americas.

There are also Entertainment categories; comics; columnists, including Dave Barry, Liz Smith, and Dear Abby; games; One On One, which lets you play games like checkers with a friend over e-mail; and snow reports for various mountains worldwide.

■ Custom News Pages. Some sites let you create your own news page, customized with your preferences. After you register with the site, you can choose news items that fit your interests from a variety of news sources. All your choices will be displayed on a single Web page.

Individual.com (<http://www.individual.com>) is a news service that specializes in business, financial, and trade news, and offers coverage on thousands of industry topics. You can easily customize a news page to match your interests. On the Individual.com home page, click the Join Now button. This will bring you

If you have a digital cell phone or another device that supports the WAP protocol, you can browse the news directly from the screen of your device.

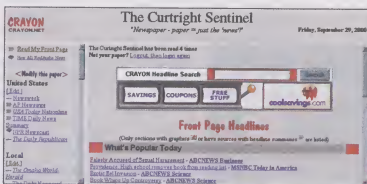
to the registration page. In the registration process, several questions are asked. You will need to give your name, user name, ZIP code, and information on your occupation. When you log on to the site in the future, your user name will be displayed on the front page. The site asks you for your job field and industry in order to customize news items for you. For example, if you say you work in the aerospace industry, space news and other science items will be selected for you. This is the simplest way to customize your news page. Once registration is done, you will be brought to your own customized front page for news.

Further customization is possible by clicking the Add button. You can select any news category you want, and the items in these sections will be displayed on your customized page.

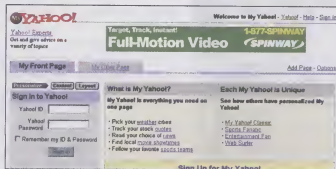
Sites like Individual News work by creating a list of partner Web sites and fetching news items daily from their databases. Custom news sites then build their own databases of news items, and send you the items that fit your preferences.

Another such service is CRAYON, which stands (loosely) for Create Your Own Newspaper. This site, at <http://www.crayon.net>, also lets you to have your own news site, but draws from much more diverse sources. The content is general news rather than business news and CRAYON doesn't rely only on partner sites but culls news from all nation-wide newspapers, as well as some local news services.

To register at the site, click Create Your Own Newspaper. You will be presented with a virtual newspaper with the most popular news sources on the front page. Click Modify This Paper to select the news sources you want. The list of available newspapers is extensive, and includes papers from Asia, Africa, the UK, and Europe, as well as the United States and Canada. You can even name your newspaper;



CRAYON lets you create and name your "own" newspaper.



You can customize Yahoo! to create a My Yahoo! page, which will display news items in the categories that you want.

CRAYON provides a list of standard newspaper names including Reporter, Planet, Picayune, Crier, Republican and Telegraph, to combine with the first name of your choice.

Other similar news sites include News@Hub at <http://forumhub.com/news> and The Daily Learner at <http://dailylearner.ics.uci.edu>, which pinpoints your interests based on survey questions.

Portal News. Portal sites are one-stop sites for everything you may want to do on the Web. They provide you with a customizable page that you set as your browser's home page, from which you can access your Web-based mail account, weather information, bookmarks, your latest stock quotes, your favorite sports team results, and news from various sites.

One such portal site is Yahoo!. The Yahoo! site offers a My Yahoo! option, which lets you have your own start page that displays the information you choose.

To create a My Yahoo! page, go to <http://my.yahoo.com> and click the MY link. If you don't have a Yahoo! account, create an account. Then, customize the content and layout of your new start page by choosing from the available categories. Yahoo! lets you customize your site's layout by choosing where items appear on the page. Once you have your own start page, simply configure your browser to use this page as your Home, and it will be displayed every time you open your browser.

Yahoo! also lets you access your customized news on your cell phone. To enable this, you have to talk to your cell provider.

Another option for getting the news on your mobile device is a service provided by AvantGo. If you have a Palm Pilot or other similar device, the site <http://www.avantgo.com> provides you with channels to many Web sites from any Palm computing device. Many of these channels are news sites such as CNN and CNET News. When you register at the site, you can select the channels you want, and they will be transmitted to your Palm device every time you synchronize it. This is yet another way to have customized news items follow you everywhere you go.

As you can see, there are a lot of options when it comes to having customized news delivered to you. For any business person or for anyone who needs to stay up-to-date on the latest happenings, there are many choices. The best news is that all of the solutions presented here are free, which makes good business sense too. **LS**

by Patrick Lambert

Speedy Delivery Services

Bringing Products To Your Doorstep As Quickly As Pizza



Instant gratification. That's the name of the game when it comes to computing and the Internet. Whether it's bragging rights to a faster computer chip or a speedy broadband connection, being first is a badge of honor in cyberspace. So should it be any different for e-tailers? It's not.

As online commerce continues to grow, business to consumer or B2C companies are taking aggressive approaches to getting goods and merchandise in the hands of customers as quickly as possible, via so-called on-demand or rapid delivery services.

■ **Super-Duper Fast Service.** According to Forrester Research, (<http://www.forrester.com>) a high-tech market research company in Cambridge, Mass., worldwide e-commerce, including both business to business and business to consumer, is expected to explode to a combined total of more than \$6.8 trillion by 2004. By that time, it's estimated there will more than 50 million households shopping online.

One way to stay a step ahead of the competition in the e-tailing world is to give consumers what they want. And what they want, according to surveys, is on-demand delivery of a wide variety of products.

Accustomed to the frenetic pace of the Internet, e-shoppers no longer want to wait a couple of days or even a few hours when they want to get hot new music or settle in for the night to watch a DVD movie.

Getting merchandise into the hands of customers as quickly as pos-

sible is the e-tailing version of the problematic "last mile," which is more typically associated with delivering high-speed 'Net access to neighborhoods and homes. In the e-tailing arena, the "last mile" deals with how to move merchandise from a warehouse, distribution center, or corner store to customers' doorsteps.

New delivery models incorporate not just getting the merchandise to its destination, but speed and convenience, aimed at satisfying the consumer. Delivery time can range from within an hour of when an order is received to a few hours later.

The range of products that can be delivered now includes everything from electronics, video and DVD rentals, CDs, over-the-counter medical items, books, snack and specialty foods, and convenience items like shampoo and diapers, even made-to-order sandwiches and fresh bakery goods from local vendors.

Companies such as Webvan, Kozmo.com, UrbanFetch.com, and Barnes & Noble are continuing to push the delivery envelope. They are being joined by a group of lesser

e-merchants and delivery services at the local and regional level.

Currently, urban dwellers are most familiar with some of these rapid delivery services. These services are not available in the rest of the country, and expansion plans into outlying suburbs and beyond, at least for now, are impractical and too costly. The reason: there is just too much territory to cover. At this point, the more potential customers packed into a small area the better. Density matters.

A survey by The Yankee Group, (<http://www.yankee-group.com>) a high-tech market research firm in Boston, finds many online shoppers an unhappy lot when it comes to delivery. Sixty-two percent report that online shopping is limited by having to pay shipping costs, 39% object to no one being home to receive deliveries, and 30% feel they have to wait too long to receive purchases.

"The last-mile battle will be won by the company that can score the hat trick—that is, build a business brand based on frequent, closely spaced, margin-producing deliveries," says the Yankee study, which was released in July.

So, who exactly are the players in this expanding and demanding market? Can they really make money? And what does the future hold?

■ **Webvan.** In late summer, Webvan (<http://www.webvan.com>) expanded to its fourth city (Chicago) with the promise of giving consumers the "gift of time."

"Webvan will reinvent the way Chicago consumers shop," boasted George T. Shaheen, president and CEO of Webvan Group. "Webvan will bring Chicagoans' favorite products to their homes, eliminating the need to run time-consuming errands to the post office, pet store, bookstore, florist, electronics store, and supermarket."

To use Webvan, choose your area of interest and click the Start Shopping icon. (You'll need to register with the site before you can check out.) When you've finished, click the Check Out icon. You'll be asked to schedule delivery, and then you can fill in your payment information and check out.

Currently, Webvan has more than 47,000 active accounts and is in four cities: Sacramento, San Francisco, Chicago, and Atlanta. The company does not provide on-demand delivery, but rather scheduled delivery during a window of time. Orders over \$50 get free delivery. In order to build the

company brand, Webvan has marketing alliances with companies such as Nabisco, Quaker Oats, Pillsbury, and Kimberly-Clark.

■ **Kozmo.com.** In the space race between the United States and the former Soviet Union, we had Astronauts and the Soviets had Cosmonauts. Well now there are Kozmonauts, the army of delivery personnel for Kozmo.com, (<http://www.kozmo.com>) which recently invaded San Diego, Calif.

To use Kozmo.com, users register for a free membership and start ordering. After you make a selection, you'll be taken to your shopping cart where you can view all items you've chosen. Click the Check Out link to pay for your stuff. You'll be prompted to select a delivery time and date and to enter payment information. Consumers can order a variety of convenience and entertainment items for free, one-hour delivery to their homes or offices. Orders for free deliveries in under an hour can be placed from 7 a.m. to midnight, seven days a week, year-round.

In the San Diego area, there are more than 100 drop-boxes, which are located throughout the city, at many Starbucks locations, deli's, office shops, office buildings and other high traffic areas, to return videos and DVDs ordered through Kozmo.com.

Founded in 1997, Kozmo.com now serves 11 cities: Atlanta, Boston, Chicago, Houston, Los Angeles, Portland, San Diego, San Francisco, Seattle, Washington, D.C., and New York City. There are plans to expand into 12 more cities by the end of the year.

■ **UrbanFetch.com.** Seeking to expand its customer base, UrbanFetch.com and beauty supply company, Sephora, recently announced an exclusive partnership, where the delivery service now speeds beauty products to customers.

The company delivers food, books, music, games, movies, and gifts and recently started offering wine deliveries. Featured are a wide assortment of wine and champagne from the United States and around the world, ranging from full-bodied Bordeaux to flavorful Shiraz. The wines are grouped by color, origin, variety and price, which makes finding and purchasing them easier than ever. Wines are sold by the bottle or by the case.

Delivery of wine products can only be scheduled between 8:00 a.m. and 11:30 p.m. daily (no deliveries on Sunday). "Last call" for orders is 10:30 p.m..

Launched in October 1999, UrbanFetch only offers speedy delivery in certain part of New York City and in London. While delivery is free, there is a \$10 minimum order.

■ **Barnes & Noble.** Bookseller Barnes & Noble (<http://www.bn.com>) contracted with CitySprint 1-800-DELIVER for same day delivery service earlier this year.

So far, the service is only available in Manhattan. Customers in Manhattan who place orders on the Barnes & Noble Web site by 11:00 a.m. receive their merchandise by 7:00 p.m. that day. The service includes residential and business addresses.

The selection of titles available for same day delivery stands at more than 800,000 titles—or

Sameday.com isn't geared to consumers. The company specializes in setting up same day delivery systems for other companies.

All of the company's facilities are connected by the firm's proprietary, real-time iShipper technology, which enables the company to provide same day service to five of the largest Internet usage markets in the United States. A growing list of e-tailers and business-to-business clients are using Sameday's fulfillment centers. So far, consumer services are only available in Los Angeles and San Francisco. Orders placed before 2 p.m. are delivered by 8 p.m. the same day for \$6.95.

■ **Streamline.com.** Streamline.com, (<http://www.streamline.com>) which serves several counties in northern New Jersey and the suburbs around Boston, Chicago and Washington D.C., does more than just deliver books or groceries. They run errands. The company provides customers with time-saving lifestyle services by offering groceries, prepared meals, dry cleaning, film processing, video rentals, and a variety of other household services to busy suburban families.

Founded in 1993, Streamline.com delivers items directly to customers' homes using a full-size refrigerator/freezer or temperature-controlled totes and a keypad garage entry system. There is a charge of \$30 a month for the refrigerator/freezer. In 1999, the company had 132,000 orders.

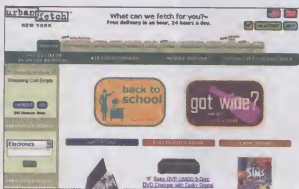
■ **The Future.** Already consolidation is taking place in the industry and strategic partners are being lined up: witness

the recent \$60 million investment by Amazon.com in Kozmo.com.

Analysts say that this is only the beginning of rapid delivery services. What will happen next?

For one thing, the days of corner pizzerias delivering sandwiches and calzones may be a thing of the past. The pizza maker may opt to use a local delivery franchise instead of hiring delivery people himself. Once companies build markets, the free deliveries offered now may not last. And finally, the growth of mobile devices, from personal digital assistants to wireless phones, may prompt deliveries to wherever you are, whether it's at a park or waiting at a garage for your car to be repaired. [E]

by David Noack



UrbanFetch.com provides free delivery in less than an hour as long as there is a \$10 minimum order. They fetch CDs, books, magazines, food, video games, movies, and DVDs, among other things. They currently serve parts of New York City and London, England.

more than 35 miles of shelving in the company's New Jersey distribution center.

Here's how the service works: To request same day delivery, online shoppers choose any book or music title labeled "In Stock: Ships within 24 hours." Availability is displayed on the Barnes & Noble Web site in red type beneath each book and music title. Manhattan customers who order by 11 a.m. and choose the Standard Ground shipping option will have items delivered to their destinations of choice by 7 p.m. the same day.

■ **Sameday.com.** Working between rapid delivery and next day delivery is Sameday.com, (<http://www.sameday.com>) an e-commerce fulfillment and delivery company, which earlier this year opened its newest facility in Dallas.

Online Gift Certificates

One Size Fits All



Online shopping has been around since browsers became commonplace. Early Web surfers discovered that if you wanted to buy something, you could probably buy it without leaving the comfort of your home or office. And certainly, if you wanted to buy something for someone else, you could buy it online and simply have it delivered to the lucky recipient. But online gift purchases still meant that you had to shop around to find the perfect gift, even if you didn't have a clue as to what the perfect gift might be.

In the real world, when you were stumped, or when you were buying for that fussy person on your list, a gift certificate was always a safe bet. You gave the certificate, but the recipient had the luxury of choosing the gift that they really wanted. Now you can do the same thing online, and it's more flexible than the old-fashioned way of giving gift certificates. Yes, the electronic gift certificate has arrived and it is growing in popularity.

But while electronic gift certificates have come of age and are available at many sites, they don't all work in the same way. Gift givers can follow many avenues when shopping for a gift certificate site. For example, some sites operate like online malls, allowing you to purchase a gift certificate online, have it e-mailed or snail-mailed to the person of your choice, who then chooses the store where the certificate can be spent and the way it can be redeemed: online or in person. Some sites

operate like catalogs, where the holder of the gift certificate can order a variety of items from one place, and still others offer original, "physical," gift certificates issued by big name stores. The usual method of distribution at these sites is the good old U.S. Mail.

■ What Makes Online Gift Giving Better? Choosing the type of site that you want to use will depend on what you are looking for and how your recipient likes to shop. The pros and cons of each site will depend on your specific needs. But nearly all of them offer incentives and special programs for the frequent shopper.

With most of the sites we reviewed, you have the option of including an electronic greeting card to accompany your gift, which allows you to personalize a message. Many allow you to hand-deliver your gift, if you choose, by providing you with a printable greeting card that includes the information your recipients need before placing an order and receiving a gift.

On the business side of things, most sites are set up so that companies, large and small, can easily use the gift certificates in their incentive

programs. The big bonus with this feature is time. The administrative time required to run an incentive program can be greatly reduced when using online gift services for corporate gift giving, employee recognition, charitable donations, customer appreciation, and so on.

While gift giving is fun and rewarding, many gift giving sites make it even more rewarding by offering their customers a certain amount of credit in their own account every time the customer purchases a gift certificate for someone else. Some sites go even further, offering affiliate programs. All you need to do is to sign up and link the shopping site from your own web site. Every time someone who has linked from your site makes a purchase, you earn shopping dollars.

Another common feature available at gift certificate or online mall sites is a gift-giving reminder service. If you are chronically late with gifts because your personal cranial files are already jam-packed, a reminder service can help you keep track of dates you don't want to forget. This is a must for the unorganized but good intentioned.

■ Buying Gift Certificates. The online mall gift certificate makes the most of the electronic environment for both the gift giver and the gift recipient—provided the recipient has online access. One popular site, Flooz (<http://www.flooz.com>), offers a huge number of online stores where certificates can be redeemed. Currently the list includes more than sixty stores, most of them large, big-name chains such as Starbucks, Barnes & Noble, Tower Records, and Mrs. Fields.

The site is easy to use. You order the gift certificate, fill out a simple questionnaire including your credit card information, and the recipients receive an e-mail notifying them of their gifts. Recipients choose which store they want to use from the ever-growing list provided on the site. Because recipients are set up with an account that can be used at any associated store, it is possible for them to buy from more than one store. And if they end up spending more than what you have given, they have the option to add money to their account. If they are unsure of which stores to

*Yes, the electronic gift certificate has arrived
and it is growing in popularity.*

While all of this electronic gift giving is cool and fast, there are still options for the more traditional gift givers.

visit, they can check an index that categorizes the stores by inventory type.

Sites like Webcertificate.com (<http://www.webcertificate.com>) and Omni Gift (<http://www.omnigift.com>) have an even better option: send one of their gift certificates and you have given your recipient the opportunity to shop at any Web site that accepts MasterCard as a payment option—in short, at virtually every online store. How does this work? It's simple. What you are really giving is a pre-paid MasterCard debit card. Because it is a debit card, there is no interest to pay. And it's not complicated to use. Once shoppers settle on an item, they choose MasterCard as the payment option, use the name on the gift certificate, place the Webcertificate or Omni certificate account number and expiration date where the credit card information would go, and wait for delivery.

Although online malls and MasterCard debit services offer an infinite variety of stores to choose from, there are times when specific online catalog sites are just what you are looking for, especially when you find a site that caters to the taste of that special someone. When that happens, it makes sense to give a gift certificate that can be redeemed there. It shows that you know your recipients' tastes and have spent some time finding the right store for them. Just as in the real world of catalog shopping, site content ranges from clothes to home décor, from sporting goods to crafts to pet stores, to whatever you want.

One unique and interesting catalog site that offers thousands of gift items is the Out Of The Blue site (<http://outoftheblue-ltd.com>). Its online gift currency, Blue's Bucks, is redeemable only by e-mail.

By searching for specific types of catalog sites, virtually every taste can be accommodated. But a word of warning: while online catalog stores abound, gift certificate options are not always available. If you do find an online catalog site and want to give a gift certificate but the option is not available, you might consider the MasterCard debit card.



GiftCertificates.com offers special gift certificates called SuperCertificates. If you purchase a SuperCertificate, the recipient can choose at which store they'd like to have the gift certificate issued.



Gift certificates from Flooz.com site can be redeemed at more than 60 stores.



If you don't want to e-mail a gift certificate, GiftPro can send the recipient a paper copy.

More Traditional Options. While all this electronic gift giving is cool and fast, there are still options for the more traditional gift givers. Perhaps the recipient of your gift doesn't use e-mail or maybe you feel that e-mailed gifts lack that personal touch. Whatever the reason, there are still online options for you. Sites such as GiftPro (<http://www.giftpro.com>) and GiftCertificates.com (<http://www.GiftCertificates.com>) will issue gift certificates from the store of your choice and mail them to the recipient.

Using these sites will allow you to present that special someone with an authentic gift certificate without the hassle of going to the store to make the purchase. The charge for the service ranges from about \$2.95 to \$15 depending on the delivery options, the greeting cards, and the wrappings that you select, plus the face value of the gift certificate. Overnight delivery can get that gift out pronto. And e-mail delivery of certificates is possible for stores that accept digital orders. If you can't decide which store, restaurant, or entertainment center will be most appreciated, you can use an additional feature of these sites that allows the recipient to choose the store they want from a list of affiliated stores. To use this feature at GiftPro, purchase the GiftPro Gift Certificate. To use this feature at GiftCertificates.com, buy the SuperCertificate.

Credit Card Security. In today's world of electronic hacking, security questions are natural. As with most online businesses, gift certificate sites strive for security. In general, you can expect that all of the information that you provide is encrypted prior to transmission, but to ease your mind, it is always a good idea to read the security and privacy section of the site in question. If giving out credit card numbers over the Web still concerns you, regardless of the security measures, you can probably mail or fax your order. [E]

by Jan Krusden

Earn Money While You Surf

Advertisers Pay Consumers To Spend Time Online



of time spent online, regardless of whether she "clicks through" an ad to be transported to the advertiser's Web site. Some companies that follow this model include AllAdvantage.com and ValuePay.Com.

The other model is similar to loyalty programs found offline, but with a distinct flavor unique to the Internet. Take, for example, the frequent flyer programs offered by most major airlines. You spend a certain amount of money on travel, and

you're rewarded with currency in the form of "miles" that you can then trade in for flights or other items.

Internet currency programs follow a similar theme, but they differ in that you earn credit for performing a wide range of actions online, such as visiting a Web site, filling out a registration form, or purchasing a good or service.

They also differ in that the Web loyalty programs tend to group together a large variety of merchant types; for example, you earn currency for visiting an online bookstore that you can turn around and spend at a Web flower shop, online auction, sporting goods site, or telecommunications page. Some notable programs include beenz, FreeRide, and MyPoints. (NOTE: The names for these three programs don't have ".com" in them, but the company names do.)

You might be asking yourself why a company would pay you to view its advertising or even simply visit its site without making a purchase. After all, you don't get paid when you listen to a radio ad or view a print ad or see a commercial on television. Besides the obvious logistical problems in doing this

offline (how could companies accurately track which ads you're exposed to?), the answer lies in the workings of the online community. On the Web, advertisers have the ability to target consumers precisely because by registering for these types of programs, a consumer typically provides all types of demographic information, including age, gender, physical location, and interests. That is valuable information for them to have.

"Consumers are so intrigued with what they can do online they have not yet realized, in a mainstream way, how valuable they are," says Glenn Jasper, a spokesperson at beenz.com. "The next step is demand from consumers, and it's logical in its approach. I help your business succeed, and I'd like a piece of the pie."

■ **What's New & Different?** The concept of getting paid to surf has been around for a few years, and like many commercial aspects of the Internet, the industry seems to change almost weekly. New companies enter the mix, other companies drop out, and mergers and service overhauls happen frequently. Plus, new features are added, including new payment schemes, changes in potential earnings, and spending opportunities.

To demonstrate what has changed in the past six months or so, and to show you a glimpse of the future, we'll walk through five of the more popular services and describe some of their new features.

AllAdvantage.com. As a pioneer in the field, AllAdvantage.com (<http://www.alladvantage.com>) is widely credited as the first earn-dollars-for-surfing company. With its launch in early 1999, AllAdvantage.com is positioning itself as a leader in the "infomediary" field; that is, it helps share information. Consumers share their valuable personal information with advertisers, and advertisers, in turn, provide information to the consumers that might find their products or services worthwhile. In this respect, both sides are rewarded: consumers earn currency and advertisers find a strong target audience.

Consumers download and install the AllAdvantage.com viewbar, which sits alongside the Web browser and flashes messages from advertisers, and AllAdvantage.com tracks the hours the consumer and any referrals are online. To further its goal of being viewed as an infomediary application, the viewbar has recently been redesigned, and users can now click it to see headlines of top news, weather, and other information.

Imagine getting paid for brushing your teeth, driving your car to the grocery store, or answering the telephone. Sound far-fetched? It might be, but there's one activity you probably do every day that you can get paid for, if you just know how to go about it.

Earning money while you surf the Web is a growing business, and hundreds of thousands of people worldwide are learning how to take advantage of programs that pay you to visit Internet destinations. The money may take the form of some type of online currency, or it may take the form of cold, hard cash; either way, the "get paid to surf" industry is handing over significant amounts of money to consumers daily.

There are quite a few variations on this idea, but the programs tend to fall into two of two main categories. In the first category, the computer user downloads a small piece of software that sits on the Desktop and activates whenever the consumer is online. The viewbar (also called a scrollbar, adbar, and numerous other names) presents advertising to the user, and the consumer is paid based on the amount

A major change in the service has been in its payment plans. Until a few months ago, the company had one scheme: It would pay an hourly rate (of about 50 cents per hour, plus referral earnings, in the United States) for up to 15 hours per month, but even this is subject to change. Recently, however, the company began offering users payment in the form of sweepstakes chances. AllAdvantage.com gives away a daily jackpot of at least \$50,000 per day, and for every three minutes that a member spends online, she qualifies for one sweepstakes entry (for up to five entries per day).

beenz. Winner of our vote for the service with the coolest name, beenz (<http://www.beenz.com>) is both the name of the program and the name of the currency members use to purchase products from around the world (and beenz.com is the name of the company behind it all). Consumers start by visiting the beenz Web site and signing up for a free account (for which they receive 100 beenz), and whenever they see a red beenz button on a Web site, they can click it to claim their beenz.

The beenz are awarded for a variety of activities at a variety of partner sites (about 350 to choose from). Participants get beenz for filling out surveys, surfing sites, and making purchases, and the service now numbers more than 13 million consumer accounts.

The beenz program also is merging its pay-to-surf service with the offline world, thanks to its new rewardcard MasterCard, which began being issued in May. The card lets beenz account holders transfer currency from their

AllAdvantage.com gives away a daily jackpot of at least \$50,000 per day, and for every three minutes that a member spends online, she qualifies for one sweepstakes entry (for up to five entries per day).

beenz accounts to the beenz rewardcard MasterCard, and then spend that currency at nearly every place that accepts MasterCard (with a few restrictions).

Another recent program (introduced in July) is beenzBack Shopping. Originally, the site was launched in March 1999, and in part, it was marketed as a way for consumers to shop online without the potential security risks of transmitting credit card data over the Internet; the idea was that beenz would be "a globally acceptable alternative to money." That concept has expanded, and now consumers can earn beenz while shopping, rather than merely spending them. Through this program, consumers receive up to 40 beenz for every dollar spent on more than 45 sites such as Dell.com, The Sharper Image, and Pets.com.

FreeRide. Another early entrant in this industry, FreeRide.com (<http://www.freeride.com>) has been around since 1995, when the company began marketing and testing a number of pay-to-surf schemes. Since its beta launch in 1997, the FreeRide program has been

letting consumers earn points they can spend at stores such as Amazon.com, Blockbuster, CDNOW, Toys "R" Us, and Red Lobster. For the past six months, the company has focused on increasing its base of members and products, but it also introduced an innovative new program that deserves special mention. (NOTE: The company name is FreeRide.com, and the program name is FreeRide.)

The Magic Bus, which was just announced in September, is a tool designed to deliver consumers to marketer sites—and to keep them there. Called a "performance-based duration marketing product," consumers visit FreeRide and hop on The Magic Bus to explore and interact on different Web sites. If the consumer doesn't stay for at least 45 seconds, the marketer isn't charged. Of course, this sounds like a great deal for the marketers, who actually are experiencing an average consumer visit in excess of three minutes and an average increase in sales of more than 150%, but it's also good for consumers because it helps marketers improve

Consider The Source

If getting paid to spend time online sounds too good to be true, you might be right. Some programs have been under scrutiny recently for failing to pay consumers on time or for failing to deliver on other promises. So how can you tell whether a service is legitimate? Here are some tips.

Ask your friends. Many programs rely on referrals to grow their membership bases. For instance, AllAdvantage.com pays its members a certain hourly amount, and that amount increases depending

on how many referrals the member convinces to sign up. Before signing up for a service on the recommendation of a friend, quiz her on how long she has been part of the service, whether she has gotten paid on time, what she likes about the program, etc.

Check with others. Third-party sources rate these programs, so take advantage of the free information and check them out before you start expecting checks for surfing. Epinions.com (http://www.epinions.com/webs-Web_Services

All-Pay_to_surf) has a comprehensive ratings program that gathers opinions from members and posts them in an easy-to-read format. Or, you can find informative articles in publications such as this one.

Know who the partners are. When considering whether to sign up for a service, take some time to view which and how many advertisers the pay-to-surf company is partnered with. Are Millie's Garage and Joe's Bakery the only two locations in which you can spend your currency? If so, you may want to

put your earning potential elsewhere.

Follow your gut instinct. Like many things, your first impression is important, so look at how professional the site is. Is there a clear privacy policy so you know how your information will be used and shared? Are the details spelled out so you know exactly how to earn and spend your currency? Be sure your questions are answered before you hand over any personal information, not after. □

by understanding exactly what potential customers are looking for.

MyPoints. The MyPoints program (<http://www.mypoints.com>) does just what the name implies, and it does so as the largest rewards program on the Internet, with more than 16 million members. Rather than earning cash for surfing, members earn points that they can then spend at a variety of online retailers. Here's how it works. Consumers can set up a MyPoints account to earn points in a variety of ways, including taking surveys, visiting Web sites, and trying out special offers. MyPoints members also opt to receive e-mail messages from advertisers, and they earn points by clicking through to the advertiser's Web site. Points can then be spent at a wide number of MyPoints merchant sites.

The biggest change in the pay-to-surf industry as a whole happened in early August, when MyPoints.com acquired Cybergold, which had formerly been the second largest player in this space. Cybergold had been a cash-based program, and Geoff Ossias, vice president of corporate relations, says MyPoints.com will continue to pay dollars to "Cybergold by MyPoints" members, noting that "we believe cash motivates a different group of people, and we believe this is the best broad-based program." (NOTE: The company name is MyPoints.com, and the program name is MyPoints.)

MyPoints.com has been busy in other areas, as well. Ossias says his company sees the big marketing wave of the future will be a merging of online and offline programs, and MyPoints jumped into the arena in July when it introduced the new MyPoints MasterCard, which is one of the earliest branded credit cards in this space. Cardholders earn points for each dollar they spend using their MyPoints MasterCard, both online and in the offline, brick-and-mortar stores. Plus, MyPoints introduced "ValuPage by MyPoints," where consumers earn points while shopping at more than 12,500 supermarkets nationwide.



The AllAdvantage.com viewbar sits below a browser window and records time spent online, so users can earn money for the hours the viewbar is active.



The Magic Bus at FreeRide delivers consumers to marketer Web sites to help marketers determine what consumers want based upon the amount of time consumers spend at their site.



MyPoints members earn points by taking surveys, visiting Web sites, trying out special offers, and more. As a reward, members can spend their points at numerous online merchant sites.

Other new programs include MyPoints Japan (geared, as you probably guessed, toward consumers in Japan) and an offline loyalty program called "Starship Points by MyPoints" that rewards parents, teachers, and school administrators with points that can be redeemed or donated back to each

individual school and later redeemed by the school for cash.

ValuePay.Com. Another company that lets you earn cold, hard cash for surfing, ValuePay.Com (<http://www.valuepay.com>) is similar in structure to the AllAdvantage.com model. Users download a small adbar called the piggy (yes, that's how they spell "piggy"), which sits on your browser or can be resized into a small piggybox that looks like a banner ad sitting in your browser window.

The business model is slightly different, however. Rather than guaranteeing you a static hourly rate, ValuePay.Com works by splitting advertising revenues 50/50 with its members. For instance, suppose an advertiser pays \$1,000 for sending out an ad to 1,000 people (and you are one). That's an average of \$1 per viewer, so ValuePay.Com keeps 50 cents and you receive 50 cents. While ValuePay.Com does not publish a strict account of its average monthly earnings, the site notes that ValuePay.Com charges its advertisers an average of 15 cents for a 5-minute spot, which works out to 7.5 cents for the consumer, or an average of 90 cents per hour.

ValuePay.Com has been focusing its energies behind the scenes lately, so although the consumer may not notice any changes on the surface, the changes may ultimately manifest themselves in the form of more cash in the pockets of ValuePay.Com's almost 900,000 members. Like many similar companies, ValuePay.Com offers its services worldwide (members live in China, Romania, and Australia, to name just a few countries), and it also is expanding its offices globally. President and CEO Gulshan Bahl says his company just acquired a business in India and that much of the Florida-based company's work will now be done overseas, cutting overhead and development costs almost in half, which in turn, Bahl says, will be a benefit passed on to the consumer. [E]

by Heidi V. Anderson

Consumers can set up a MyPoints account to earn points in a variety of ways, including taking surveys, visiting Web sites, and trying out special offers.

Secure Internet Transactions

Tools You Can Use To Avoid Online Fraud



from Internet sales and pay about 66% more in rates than ordinary retailers. While an average credit card purchase can cost about 1.5% of the transaction, plus 30 cents per transaction, online sellers can pay 2.5% of the transaction, plus about 30 cents a transaction.

Surfing to the rescue are a number of new businesses that attempt to make online transactions more secure. Services such as X.com PayPal, ProPay.com, Ecount, Internet Cash, and PayPal.com allow consumers to buy online without handing over their credit card numbers to just anybody. They also allow small e-tailers the opportunity to accept secure transactions without paying the big credit card fees. The majority offer person-to-person services (also called P2P services), letting customers pay each other in a safe environment.

At one time, when you wanted to send money, Western Union was probably your first stop. Now, you don't even need to leave your home computer. And most of these companies protect your financial information with firewalls, secure servers, and encryption designed by some of the founding fathers of computer security.

■ **A Real Pal.** Many of the companies have been around for only a year or so but have developed a significant client base in that short amount of time. Take, for example, X.com PayPal (<http://www.x.com>; 877/672-9725, 650/251-1100), which has more than 3.5 million

users since its beginning in late 1999. PC Data, a research firm that ranks Web sites on usage numbers, listed X.com and PayPal in its first and second place positions in the Finance & Investment category of its fall 2000 reports.

And PayPal can boast that it was around when this whole crazy P2P thing began. If you want to start pointing fingers, direct them to the online auction houses, says James Van Dyke, senior analyst of Financial Services at the Jupiter Communications market research firm. While sites such as eBay are wonderful for e-commerce, he says, they create a huge problem: consumers are ill equipped to guard against fraud.

"Consumers don't take credit cards," he says. "And if they take a check, they can't really protect themselves against fraud." Once you get the check in the mail (typically about five days after the sale), you have to decide if you trust the buyer, Van Dyke says. Should you wait 10 days for the check to clear, or should you send the item right away?

"We invented the concept of person-to-person," says Vincent Solitto, spokesman for X.com PayPal. When PayPal began exchanging money in November 1999, it was one of the only companies handling P2P payments, Solitto says. (Its competitor, X.com, started about the same time, but the two companies merged in March 2000.) X.com PayPal now handles about 120,000 transactions a day.

PayPal lets you send money about as easily as you send e-mail. Anyone with an e-mail account can send or receive payments through PayPal for free. All you have to do is register your name, address, e-mail address, and telephone number. Of course, you'll also have to give PayPal a credit card number or bank account number to fund your payments. However, you get \$5 credit when you first register. (You also get \$5 credit for each PayPal referral.)

Although the service is generally free for consumers, Business and Premiere customers are charged up to 1.9% of the transaction total per transaction and/or 25 cents, and they can receive PayPal payments directly on their Web sites. So far, PayPal has 200,000 businesses signed up for the business service it introduced in June.

To send a payment, fill out a form with the e-mail address of your payee, as well as the amount. The recipient receives an e-mail that says, "You've Got Cash!" When the seller opens the message, he clicks the X.com link to go to the Web site and collect. If you opt to buy from a business that uses PayPal, the Web site

E-commerce may be the wave of the future, but Web buyers and merchants are often caught in a whirlwind of fraud and extra expenses. The idea of transacting business with a faceless virtual store dampens the enthusiasm of some buyers. According to a recent study by the Boston Consulting Group, about 44% of consumers say that fraud keeps them from shopping on the Internet. Moreover, according to NFO Interactive's Online Retail Monitor, 17% of those surveyed have experienced fraud personally or know someone who has been a victim of fraud online.

It's just as difficult from the seller's point of view. Trying to compete against physical retailers, it can seem as if e-tailers are paddling upstream. According to the Gartner market research organization, e-tailers are hit from all sides when they collect payment through credit cards. The survey showed that e-tailers suffer from 12 times more fraud than ordinary retailers. E-tailers foot the bill for disputes and fraud

will feature a Buy Now or Purchase button that you can click to input your personal and account information. PayPal then takes over the transaction process to make sure that you get your product and the company gets its money.

There's little risk involved in such transactions because PayPal offers a guarantee that protects the buyer against fraud, regardless of whether she sends payment using her credit card or bank account. There's also an antifraud policy that protects against unauthorized use on the slim chance that someone might hack through the secure servers into the encrypted card information, Solitto says. This risk-free environment allows transactions to happen much more quickly because buyers and sellers know they are guarded against fraud.

In the online auction world, PayPal's closest competitor is Billpoint (<http://www.billpoint.com>; 408/626-4999), a secure transaction business that handles payments only on eBay. Billpoint was actually started by eBay, Visa, and Wells Fargo to cut into a portion of PayPal's business. However, Solitto says that PayPal is preferred over Billpoint six to one. Sellers can list Billpoint Pay Now! Buttons on their item page to allow buyers to set up payment as soon as the auction ends.

The costs for sellers range from 35 cents to 39 cents, plus 3.9% of the transaction total.

■ **Alternative Services.** While PayPal is well known in the online auction circuit and has a huge customer base, it isn't the only fish in the sea. Several competitors have additional services, such as the ability to offer customer rewards or send gift certificates. Some services even offer debit cards that consumers can take with them to shop at Web merchants or get cash at an ATM.

Take, for example, ProPay.com (<http://www.propay.com>; 801/852-4100) where you can e-mail money and accept credit card payments. The fees are somewhat similar to those of credit card companies; ProPay charges about 35 cents and 3.5% of the transaction total. But there's no signup fee and no monthly charges. It doesn't cost anything to buyers, and they don't need to register. If they do register, however, there are no charges to transfer money between two registered ProPay accounts.

Using the service's Web Pay option, you can send a buyer a bill through ProPay. The buyer clicks a URL (universal resource locator; a Web address) link and goes to ProPay to enter credit card information. ProPay then puts the

money in the seller's account. Although the seller doesn't see the buyer's credit card information, the seller is still able to process the charge, and the buyer will see the charge on her credit card statement the next month.

ProPay also accepts Personal Pay payments, which allows individuals to give the seller their credit card number, and the seller enters the information into the ProPay Web site. ProPay then sends the buyer and seller a confirmation e-mail. This method was created to encourage offline transactions that protect both parties.

To register for an account, you need a valid credit card, a checking account, and a social security number. New accounts receive \$10 in their accounts, for a limited time, and another \$10 when they refer someone else to the service.

Another e-mail-based transaction service, Ecount (<http://www.eaccount.com>; 610/941-4600), not only lets you send cash via the Internet, it also lets you take it with you. The service offers a real-life debit card you can use anywhere MasterCard is accepted to make purchases. But first you must transfer money to your debit card account. You can also make cash withdrawals from the card at ATM machines. The cost for the card is a one-time fee of \$4.95.

Micropayments

Purchasing items online doesn't have to cost a bundle. You can buy all sorts of services for just pennies. For example, you can pay a couple cents to use a piece of clip art or spend a few pennies to read just one article from an online newspaper.

Although the cost is small, the problem with making such little purchases can be rather large. Products costing less than \$5 or \$10 are usually delivered instantaneously. So, must the payments be prepaid? In addition, billing such small amounts through credit card companies can cost the merchant more than the total bill.

The question of how to handle these micropayments has been answered before. DigiCash and CyberCash failed with their forms of digital cash; the former

went bankrupt and the latter discontinued its CyberCoin. The next solution may be a wallet-type system that resides on your PC or browser, securely storing your account or credit card information.

Several big name companies such as Compaq and IBM are trying to solve the micropayment problem. Compaq is working on a prepaid system called MilliCent (<http://www.millicent.com>) at its Systems Research Center. This system uses an electronic ticket, called scrip, for purchases as little as one-tenth of a cent. After setting up a MilliCent account, you need to add funds to it before purchasing goods or services at sites that accept MilliCent. Although MilliCent is only currently in use in Japan, the company says it

will soon come to the United States and Europe, but could not determine when.

IBM recently posted a version of its Micro Payments system on its alphaWorks site (<http://www.alphaWorks.ibm.com>) to encourage licensors. Daniel Jue, manager at alphaWorks, says IBM developed Micro Payments to process fractions of pennies, and it's likely that its system will be plugged into other systems, as well. For example, Jue says that users could use Micro Payments when paying for a fraction of a second on their cellular phones. At this time, the developers are working with a U.S. electrical company, and they hope to have the system running at the beginning of 2001.

Although it is not designed specifically for micropayments,

Microsoft's Passport Wallet (<http://www.passport.com>) may be another solution that's feasible. According to Microsoft, Passport Wallet can make small purchases as long as you use it at a participating Passport merchant site. Passport Wallet works by storing all of a customer's shipping and billing information in one place, so that the user can simply enter a username and password, and then access her Wallet. The reason this system works for small payments is because it charges users in one lump sum, putting all those little purchases together. It doesn't cost you anything to create a Passport Wallet, but you do have to register. □

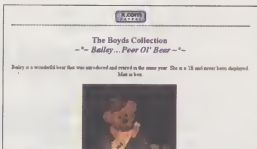
And similar to the other services we mentioned, you can use a button for users to automatically link to Ecount and complete transactions. It's free to send, receive, or request money. There's a \$1 fee to transfer money to your pre-paid account or withdraw money through an ATM. Or, you can use PrivateBuy, introduced in August 2000, to make purchases online (anywhere that accepts MasterCard) without giving your name and credit card number. To accomplish this, Ecount gives you a number and anonymous billing address to use, and then takes care of routing everything for you. You must prepay this debit account, and it costs about \$3.95 to transfer money into the debit account.

Want to send a gift? Webcertificates from Ecount let consumers or businesses e-mail gift certificates that recipients can use at any online merchant that accepts Visa or MasterCard. In May, the company also announced an Ecount Incentives program that allows businesses to give out promotional offers and rewards with an Ecount account or a Webcertificate. About 120 companies use the program, including Suretrade, Dell, AT&T Broadband, and Decide.com. Altogether, Ecount has issued more than 1 million total accounts, with about 400,000 of those accounts currently active.

Once known as SafeTPay.com, eConnect is another service that uses real credit and debit cards to transact online. Its Bank's Eyes Only system uses eCashPad, a credit card reader device that you connect to your computer. You swipe your debit cards or your ordinary credit cards and only your bank sees the information. Currently eConnect (<http://www.safetpay.com>; 877/399-7467) is conducting trials in the United States. The eConnect system is also being set up in the Dominican Republic, and will soon follow in Ireland, Australia, and Hong Kong. To use the system, merchants have to register with eConnect, and then customers will eventually be able to get eCashPads.

InternetCash (<http://www.internetcash.com>; 212/324-5700), which was launched in late 1999, offers prepaid cards in the amounts of \$10, \$20, \$50, and \$100 to spend at Web merchants that accept them. You don't have to register to use the system, and the 150 online merchants that accept InternetCash never see your Internet cash number or PIN.

InternetCash has also signed an agreement with Info Touch Technologies so that the cards can be used for purchasing Web time or for online shopping at Info Touch kiosks, found at airlines, hotels, and stores.



Some eBay sellers feature X.com PayPal logo buttons within their auction sale listings. Click the button to connect directly with PayPal and begin registration.

PayPlace.com by Dynamic Transactions (<http://www.payplace.com>; 877/729-7522), which opened its doors in June 2000, is another popular e-mail transaction service that gives consumers the ability to accept credit cards and send payments. First, however, you must register to use the service.

Disposable Credit Cards. The latest development in secure online transactions involves regularly scrapping credit card numbers. Imagine using a credit card number once, then throwing it away for a totally new card for your next purchase. And once the card number has been used, it can't be used again. The technology is there to support this type of exchange, but it's taking its time traveling to the United States.

Orbiscom (<http://www.orbiscom.com>; 212/486-2600), based in Dublin, has developed a one-time payment technology called the O-card Software System. Instead of asking individuals to sign up with Orbiscom, individual banks enlist the O-card technology, giving their customers the ability to use these limited-use numbers.

Here's how it works: Download a small software application that resides on your Desktop behind an O-card icon. Ray Sheridan, chief operating officer at Orbiscom, says that when you are online and choose to make a payment, you click the button and O-card connects to the Web site issuer and generates a new number.

"To the merchant, the transaction is seamless," Sheridan says. The merchant seeks authorization through the normal credit card networks. When the transaction gets back to the bank, the bank recognizes the O-card technology. Orbiscom identifies the number and translates it back to the real credit card number for the bank. Once the transaction is complete, the number is retired and cannot be used again.

Currently, the Orbiscom technology is being used by two issuers in Europe: the HFC Bank's

marbles credit card in the United Kingdom and the AIB Group of Ireland. In addition, Sheridan says that Orbiscom is currently working with two major U.S. issuers and hopes to have the O-card technology available for the holiday shopping season.

Cyota (<http://www.cyota.com>; 212/977-5402) is based in New York with a research facility in Israel, and is working on a similar disposable number system for credit cards. Called SecureClick, the technology also uses a small applet that resides on the users' Web browser and operates through issuer banks. Currently, Isracard, Israel's leading credit card issuer, has agreed to offer SecureClick to its customers by January 2001. Cyota is also working on establishing issuers in the United States.

Although it wasn't the first company to come up with the technology, American Express (<http://www.americanexpress.com>; 800/327-2177) is the first to officially bring it to the United States. American Express recently announced that it intends to offer its customers a limited-use number service called Private Payments. Once you download the free software, you can click a button on your Desktop or go to the American Express Web site, type your username and password, and get a number and expiration date. When the transactions process, your real credit card number never leaves American Express. This new service is expected to be available in October 2000.

More To Come. Along with making your credit card disposable, these payment companies are also making your payment options more portable.

For example, companies such as PayPal, ProPay.com, and Orbiscom are expanding their services to allow you to make and receive payments from cellular phones or PDAs (personal digital assistants) equipped with Internet access. It's really no surprise that these companies are going wireless when you consider that the IDC market research firm predicted that the wireless Internet market will grow to 61.5 million users by 2003.

As these companies catch on and attract more customers and businesses to their services, they will increasingly become safe ports in the online transaction storm. Before too long, consumers will be able to worry less about fraud and more about how much they're spending online. [E]

by Cindy Krushensky

Share Your Pictures Online

Discover Photo-Sharing Sites



Whether you snap your pictures with a traditional film camera or one of the most state-of-the-art digital cameras available, you can

now get your images online quickly and easily using Web sites that are designed to help you show off your photographs. Recently, as prices for digital cameras and scanners have become increasingly affordable, more photo-sharing Web sites have appeared to serve the growing interest in sharing photographs online. If you haven't visited any photo-sharing sites in awhile, you'll probably find that these sites are easier to use and offer more features than you remember. Virtually all sites offer developing services that transfer your digital images onto photo paper so that you can hand out your handiwork to friends and family members or place it in your family's photo album. Some of these sites also offer products with your custom photographs printed on them, which can make nice gifts. Some of these products include mouse pads, T-shirts, and coffee cups.

■ **Online Photographs.** Photo-sharing sites are a great way to share photos with friends and family who have access to the Internet. You can simply upload your images to one of these sites or send in your original undeveloped film, and the site will put your images online for free. You can then send your friends and family links to these pictures and let them order only the prints they want. While these sites allow you to host your photo albums online, their focus is getting you, your friends, and your family members to purchase printed photos

and other photo-related products from the site.

High-resolution photographs, the ones with the highest picture quality, are far too large for most people to download and view on their computers in a reasonable amount of time. For this reason, photo-sharing sites take your original images that you upload and reduce their file size (which also reduces the quality of the pictures) so that the images can easily be viewed by anyone with an Internet connection. Using a dial-up modem, it could take an hour to download and view a single high-resolution picture.

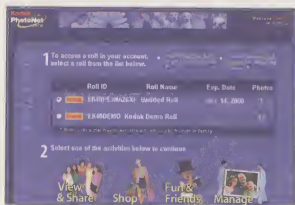
Prints ordered from your online photo albums are created from your original uploaded images. This ensures that you have the highest possible resolution and picture quality for your prints. Images ordered from your online photo album are printed using your original uploaded image, so they usually come out looking much better than they do online.

Because these sites reduce the quality of your work for display online, they are not really geared towards the professional photographers who wants to show off his or her work. Such professionals are better off putting together their own Web sites to share their work with others. Putting together a private site gives professionals control over how much

their images are compressed, thus allowing them to control how the images are actually viewed online.

■ **Are Your Online Images Safe?** Just as some people are still afraid to use their credit cards to make online purchases, there are those who have concerns about sending their photographs to online services in fear that their images will be taken and used by others without permission. But sending your images to online services to be developed and shared in organized photo albums is fairly safe. All of these sites have taken measures to ensure that only those authorized by you can see your photos online. Normally, you send your friends and family members a link to where your images are stored online. However, they can then forward others the same link or logon information to view your photos online without your knowledge.

■ **Ofoto.** Ofoto (<http://www.ofoto.com>) is one online service that lets you get your digital images developed into photographic prints and create online photo albums to share with friends and family around the world. Ofoto has one of the easiest to use Web interfaces of all the photo-sharing and developing sites available. Before you get rolling with Ofoto, you need to register at the



Kodak PhotoNet will develop your pictures or transfer them to mouse pads, coffee cups, or T-shirts.

company's home page, where you set up your free account. Once you register and become a member, 50 digital prints are free as a bonus for signing up.

Ofto allows you to create different photo albums to accommodate all of your photographic categories. This lets you organize your photographs into photo albums for each special occasion such as a vacation, birthday, or holiday. After you create photo albums, you can share them with friends by selecting Share from your View Albums page. You then enter the e-mail address of a friend with whom you wish to share your photo album, a subject, and a brief message.

Uploading your images is made easy with Ofto's drag-and-drop utility. After you download this utility from the site and install it on your computer, you can simply navigate to the images you wish to upload with Windows Explorer and drag them to the Ofto Web page. The Ofto utility then launches and uploads your selected files, giving you an estimated time until your file upload completion. You can also upload images to the Ofto site using only your Web browser; Ofto offers a file browse utility that lets you use your Web browser to find image files for upload.

Once you have your photos online, you can use Ofto's enhancements to give your pictures some really unique effects. The photo enhancing system available on Ofto's Web site gives you the ability to turn your pictures into black and white images, add color filters to your images (such as blue and green), and add distortion effects to your images such as bulge and zig-zag. If you are really trying to get a different effect, you can select the charcoal or sketch effect making your photographs appear as if they were hand drawn.

Prints available from Ofto include in 4 x 6 (49 cents each), 5 x 7 (99 cents each), 8 x 10 (\$2.99 each). To help you get the best picture prints out of your digital images, Ofto will tell you whether it is recommended to have your lower resolution photos developed into larger pictures, such as the 8 x 10 enlargement.

■ **Kodak PhotoNet.** PhotoNet (<http://www.photonet.com>) is Kodak's offering for developing your digital images

to print. It offers great gift ideas with your photographic images printed on them. Using PhotoNet, you can have your images printed on photo paper, mouse pads, coffee cups, and even a jigsaw puzzle.

Kodak's approach to online digital image management is a bit different than most of the other services that give you free space for your images. Before you can upload images to the Kodak Web site, you need to purchase a digital "roll" of film for \$5.99. You are really buying server space to hold 36 images to work with online. A virtual roll of film stays online for 30 days. You can extend the life of your digital roll for a fee of \$1.49 per month. Images can be added and removed from your roll as many times as you like, just as long as the roll has not expired.

When you share images with your friends and family using Kodak's PhotoNet, you share entire rolls at a time. This allows those who view your digital rolls of film to purchase prints from Kodak or purchase gift products displaying your image. There is no way to limit which pictures people who visit your digital "roll" of film online will see. It is either all or none. If you intend to use Kodak's site to share images, it is best to purchase two rolls of film; one to share with others, and

one personal roll that you can use to upload private images and for storage space.

Kodak's Picture This lets you send digital postcards via e-mail using images that you upload from your computer. You select a border, add a greeting, and give your postcard a personal message before sending it to a friend. If you want to send a postcard to someone without a computer, you are in luck. Kodak, like PhotoPoint, has teamed up with Amazing Mail.com, allowing you to send postcards via the U.S. mail service with your digital image printed on one side and your message on the other. Prints from Kodak are competitively priced at 49 cents for a 4 x 6, \$1.49 for a 5 x 7, and \$4.49 for a large 8 x 10 inch print.

■ **Shutterfly.** One of the sites devoted to helping you print and share your digital images is Shutterfly (<http://www.shutterfly.com>). Everyone knows about the dreaded red-eye effect caused when a flash is used to take a picture. Fear no more. Shutterfly allows you to enhance your photos online. Shutterfly's red eye reduction enhancement allows you to choose the eye or eyes that need to have the red eye effect removed. It then enlarges the area and asks you to select the red portion of the eye. After you show the Shutterfly enhancement system where the red is, it removes the red-eye effect from your picture. Some images may require you to repeat this process a few times to get out all of the red, but this feature really works great and allows you to save those otherwise good pictures. Other image effects allow you to add creative borders to your images and crop images to remove unwanted elements from your photos. You



Ofto lets you preview digital images before deciding to order prints.

can even adjust the color saturation in your uploaded images.

If you are still using a traditional film camera to capture images, Shutterfly is for you. You can request film mailers from Shutterfly that come with pre-paid postage and allow you to send them your undeveloped film. Shutterfly puts your images online, and ships the negatives back to you within 5 to 7 business days of processing. You are then notified via email when your images are ready to be viewed online.

You can order prints and have them shipped directly to your recipients via the U.S. mail service by simply putting a check mark next to their names. Shutterfly prompts you for the quantity and sends the prints of your choice directly to them. Prints from Shutterfly are available in wallet size (4 for \$1.49), 4 x 6 (49 cents), 5 x 7 (99 cents), and 8 x 10 (\$2.99).

■ **PhotoWorks.** PhotoWorks (<http://www.photoworks.com>) operates a little differently than most of the other sites offering online photo-sharing services. Instead of creating an account with them, you must first place an order. Once PhotoWorks receives your first order, they e-mail you a customer number and a roll number that you use to log in and view your images. After you receive your account activation, you can order new prints, archive your images online, and use the other services they offer such as online post cards. PhotoWorks also has a gift section offering unique products for displaying your custom images.

When you first register with PhotoWorks, you receive a free starter kit including free developing for your first roll of film and postage-paid envelopes for sending in your next roll of film. PhotoWorks scans your images, places them online, and sends you an e-mail notifying you that your images are ready to view, organize, and share. PhotoWorks then mails you back your negatives, prints, and an index print of your roll at no cost.

While PhotoWorks offers an easy to use image uploading application, it only runs on Windows 95/98 and not on



In Snapfish's My Shoebox section, you can create multiple photo albums for displaying your collections.

Windows NT or 2000. If you are working with digital images and running Windows NT or 2000, you should pick another photo site to work with. Processing rolls of film is the main focus at PhotoWorks. After developing your film, PhotoWorks scans your images and puts them online for you to view and organize into albums. You can then share your prints with others, and they can order selected prints directly from PhotoWorks.

PhotoWorks allows you to send selected photos via e-mail and attach a custom voice message to go along with your picture. When you select the option to add voice to a picture e-mail, you are given an 800 number to call with a message ID code. You then call the toll free number, enter your message ID, and speak your message. PhotoWorks then takes that message, attaches it to your e-mail and sends your picture along with your recorded message to your recipients.

PhotoWorks offers more sizes of reprint variations than any other photo sharing and development site out there. Standard sizes

include wallet size prints (2 for 75 cents), 3 x 5 (35 cents) 4 x 6 (50 cents) each. If you are looking for enlargements, PhotoWorks offers 5 x 7, 8 x 12, 11 x 14, and 12 x 18 ranging in price from \$1.95 to \$11.95 a print. If those sizes don't seem large enough, you can purchase a 16-x 25-inch poster for \$15.95 and a 20 x 30 poster for \$21.95.

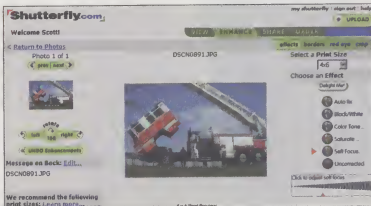
■ **Snapfish.** Snapfish (<http://www.snapfish.com>) offers the best layout and by far one of the easiest Web interfaces. At Snapfish, you send in your film using free mailers provided upon request. Your film is then processed and scanned into a digital format and placed in a new photo album online. You are then e-mailed a confirmation that your images are ready to view online while Snapfish mails your negatives and one free copy of your pictures. You are only charged \$1.69 for shipping and handling. Snapfish will develop 24 rolls of your film in a 12-month period. After you reach your limit of 24 rolls, Snapfish charges only \$2.49 per roll.

Snapfish offers its service free to you by operating on revenue generated from sponsors. Sponsors pay your film development fees and for server space for your online photos and albums. Banner advertisements at the top of the screen are rotated in and out as you are working with your Snapfish account to promote Snapfish sponsors.

Albums on the Snapfish service are nicely organized in My Shoebox, the default page after you log on to its service. From here, you can easily add new albums and upload new images. Once you create an album at

Snapfish and upload your images, you can place your order and share your online albums with others. Snapfish albums, like the Snapfish user interface, present your work with one of the best-looking photo albums. Ordering prints is made easy, and prints run 59 cents for a 4 x 6, 99 cents for a 5 x 7, and \$2.99 for a giant 8 x 10.

■ **PhotoPoint.com.** PhotoPoint (<http://www.photopoint.com>) offers a wide range



At Shutterfly, you can apply a few special effects to change the look of your pictures, including Soft Focus, shown here.

of sizes for developed pictures including a 20 x 30 inch print for \$38.99. Because such large prints can come out looking poor in quality, PhotoPoint analyzes the picture resolution and recommends the maximum size at which you should have your digital image developed.

Learning how to maneuver the PhotoPoint site can take some time. Once you get the hang of it, the site offers great flexibility and printing options not found with any other service on the Web. The PhotoPoint site is completely Web-based, and, as we mentioned, the site design could use a little work as far as usability.

PhotoPoint makes it very easy to share your online albums with more than one person at a time. You can store all of the e-mail addresses of those you share your images with in an online address book that is tied to your PhotoPoint account.

Like Kodak's PhotoNet, you can send real postcards (in the mail) via AmazingMail.com. This feature lets you send a postcard printed with your photograph to anyone in the U.S. You simply enter your recipient's address and a custom message or greeting and let AmazingMail do the rest. When you sign up with AmazingMail, your first three postcards are free and you then pay only \$1.25 per card.

Unlike other photo-sharing sites, all people have to know to view all of your albums is your e-mail address. Users simply go to the PhotoNet home page where they enter your e-mail address to view a list of your photo albums. If you have albums that you don't want just anyone to look at, you have the option of password-protecting them for privacy.

If you happen to already be a member of Kodak's PhotoNet, you can easily transfer

your images from your PhotoNet rolls to your PhotoPoint album. When you go to upload images, there is an option to upload images from your PhotoPoint account, making it easy to get your images to your PhotoPoint album. Standard prints at PhotoPoint include 4 x 6 (49 cents), 5 x 7 (99 cents), and 8 x 10 (\$2.99).

■ **Picture It.** Online photo-sharing sites are easy to use, convenient, and safe. (Just make sure that the site you choose won't display your private pictures, if you have any, to everyone.) If you have pictures to share (and who doesn't?), find a site you like and start posting. You may decide that your days of carrying around crumpled family pictures in your wallet are over. **[E]**

by Scott Jones

Digital Picture Frames

Are you tired of looking at the same pictures? The Sony CyberFrame and the Ceiva picture frame are out to give you a fresh view when

you want it. With the look of traditional picture frames, these high-tech devices incorporate a 5.5-inch color LCD display that has a picture area

of about 5 x 7 inches. They can each hold multiple images, allowing you to change pictures quickly and easily.

The Sony CyberFrame (\$899) is a sleek looking picture frame capable of playing full motion video in MPEG format, and it has a built-in speaker to play sounds and music along with your video. The CyberFrame can also display still pictures of your choice. The active-matrix display is capable of displaying images at resolutions up to 1,600 x 1,200 dpi (dots per inch) for super crisp and detailed pictures. The CyberFrame has a touchless sensor that lets you turn it on and off with just a wave of your hand. CyberFrame uses Sony's new memory media, Memory Stick, to hold all of your images and is currently available in sizes from 4MB to 16MB. You can check out the Sony CyberFrame on the Sony Web site at <http://www.sony.com>.

The Ceiva picture frame (\$299) is a digital picture frame with a traditional wooden frame look. This high-tech picture frame receives images directly from the Internet. When you purchase the Ceiva frame, you also purchase the Ceiva Internet service so that you can receive images. The Ceiva connects to the Internet for a few minutes each night via a telephone line and downloads any images that you have waiting. The Ceiva holds up to 10 digital images and is capable of displaying them at a resolution of 640 x 480 dpi. The Ceiva is only capable of receiving images via the online service and cannot receive them directly from a computer. The annual charge for the Ceiva online service is \$79. If you don't have a local Ceiva connection number, you can purchase its toll-free service for an additional \$49 per year. For more information about the Ceiva, check out the Web site at <http://www.ceiva.com>. □



It looks like an ordinary picture frame, but the Ceiva frame is a high-tech device that can download pictures from the Internet.

Reinventing The Book

E-books Closer To Finding A Niche



That doesn't necessarily mean that you'll be reading your electronic stories on one of those small, book-like devices: The term e-book stands for electronic book but it is used for both the device on which you read the book—or the software you use to read it on a computer or PDA—and the book itself. (We'll call the reading software the e-book reader and device, and the reading material the e-book title.)

■ E-book Devices.

A number of portable

e-book devices, which come in a range of shapes and sizes, are available. We looked at a few of the current offerings to give you an indication of what you can expect to find in terms of technology, size, capacity and battery life.

Rocket eBook Pro. Earlier versions of the Rocket eBook Pro were launched in 1998, making it and the SoftBook Reader two of the first e-books. The Rocket eBook Pro is designed for use with PCs and notebook computers and will interface with some later-version Macs. About the size of a paperback book, it weighs in at 22 ounces and has an impressive 16MB of memory, which can potentially hold 19,000 pages or some 50 books. A 32MB memory upgrade increases the capacity to 56,000 pages. The screen is a backlight, touch-sensitive LCD (liquid-crystal display). The battery life (always a limiting factor in portable devices) is approximately 40 hours. The software has an embedded browser which you'll use to purchase and manage the e-book titles you use.

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SoftBook Reader. The SoftBook Reader is larger than the Rocket eBook, at 6 x 8 inches in size and a hefty 2.9 pounds. It has a touch-sensitive grayscale screen and 8MB of memory, which provides storage for around 4,000 pages of text. Its rechargeable battery will give between two and five hours of operation between charges.

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In January 2000, a company called Gemstar International Group Limited acquired both NuvoMedia (maker of the Rocket eBook Pro) and SoftBook Press (maker of the SoftReader).

■ **E-book Reader Software.** You don't have to buy a handheld device to read e-book titles. You can download and read e-book titles on your desktop or notebook computer and, in some cases, you can also read them on your handheld computer. We looked at some of the most popular e-book reader software. As you read, remember that you can't read just any e-book title on any software or reading device; most are device- or software-dependent so you must match the e-book title's format to the reading device or software you're using.

DocAble. Everybook's DocAble is PC-based document management software which can read PDF (portable document format) documents in a book-like format. Not yet

It was once thought that computers would do away with the need for paper. However, the reality has been the opposite: the more computers proliferated, the more we consumed paper. But if the concept of e-books takes hold, we may be using less paper for our reading material. What was once thought to be cutting edge technology with a high geek quotient and little practical basis is becoming more mainstream.

Thanks to the affordability of the hardware and the growing number of books available in digital format, e-books are looking more viable. According to some observers, chances are that one day soon the characters you'll be reading before bed will be produced by computer bits and bytes instead of ink and paper. In fact, in a recent *Newsweek* article, *Newsweek* senior editor Steven Levy predicted that within 20 years, 90% of reading materials will be distributed on electronic media.

commercially available, it is expected to be released in January 2001 and to cost \$295. The software lets you view multiple documents at the same time and search within and between documents. Open a document in the software and you'll see a familiar two-page presentation. However, unlike a book, these pages don't have to be contiguous, so you can view pages two and 10 at the same time. Or you can view one page each from two different documents. DocAble's placeholders let you mark important parts of documents for quick retrieval and a bookmark is automatically inserted when you close a document, letting you open the document next time and start reading where you left off.

Microsoft Reader 1.5. Originally available for Pocket PCs, Microsoft's Reader is now compatible with Windows 9x, NT 4.0, 2000, and Windows Me, making it usable on desktop and notebook PCs. The free download requires approximately 13MB of free hard drive space as well as Microsoft Internet Explorer 4.01 with Service Pack 1 or later. The new PC version lets users purchase e-book titles directly through Barnes & Noble (<http://www.bn.com>).

In addition, Microsoft is offering a plug-in tool which will let Microsoft Word 2000 users convert their documents into Microsoft Reader files. The software provides good font resolution on LCD screens for users who have Pocket PCs or notebooks as well as those using desktop PCs. The Reader includes tools

for bookmarking, highlighting, and annotating text. In the future Microsoft is considering adding interactive features such as links to author biographies and author notes, movie trailers and even laser eye tracking so that the book's pages will turn automatically as you read.

Glassbook Reader. Glassbook's Reader 2.0 is e-book reading software for notebook and PC users. It will run on Windows 95 or NT 4.0 and requires Internet Explorer version 4 or 5. The company plans to distribute a Macintosh version shortly. Like the Microsoft Reader, Glassbook Reader is available as a free download or you can purchase an enhanced version, Glassbook Plus Reader, for \$39. The enhanced version includes an unabridged dictionary, and Infrared Beam and Internet Lend and Give capacities for selected books.

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Stephen King Goes E-book

In March 2000, popular fiction author Stephen King and his publisher Simon & Schuster (<http://www.simonandschuster.com>) made history by releasing King's book "Riding the Bullet" on the Web. Since then, King's taken the e-book to a different level by selling his own book, himself, chapter by chapter as he writes it from his own web site (<http://www.stephenking.com>). The book "The Plant" is a work in progress and interested readers can download it for \$1 an installment. At the time of writing, installment 3 was the latest available.

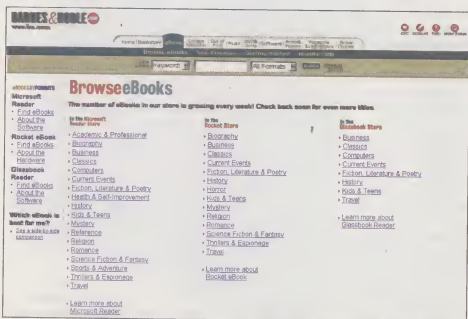
Following close on King's tail are other mainstream authors including Michael Crichton whose book "Timeline" is available for free download at the Barnes & Noble Web site. ☐

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Recently, Adobe Systems acquired Glassbook's Glassbook Reader technology and plans to integrate it into future versions of its own Adobe Acrobat Reader.

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Bookseller giant Barnes & Noble has an entire section of its Web site dedicated to e-books available for MS Reader, Glassbook, and Rocket eBook. The site offers links for getting information on the Rocket and for downloading the free readers from Microsoft and Glassbook. There are also books available for purchase for any of the three systems. Barnes & Noble also offers 100 titles for the Microsoft Reader which are free for downloading. In addition, it has a limited number of \$1 books and even some Cliff's Notes. The categories of available e-books include Academic &



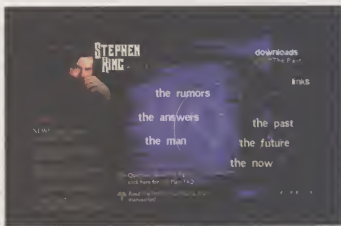
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Professional titles, Business, Travel, Self-Improvement, Mystery, Reference, and even Sports. As a guide to what you'll pay for e-book titles, we looked at prices for Rocket eBook titles on the Barnes & Noble Web site. On one page of titles alone, prices ranged from a low \$2.95 to a high \$19.16.

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Aporis Technologies. Aporis Technologies (<http://www.aporis.com>) was founded in 1997 primarily to create and market a line of wearable and portable software products. The company's focus is on small business solutions for people on the move who don't necessarily have access to a desktop computer. The company's site offers 3,000 free e-book titles which can be downloaded to a desktop computer or to a handheld and viewed using the company's own AporisDoc software which is required for handheld devices. AporisDoc Mobile 2.2 for Windows, Mac, and Linux costs \$30. The site's e-book categories include both a Reference and a Literature section. The reference categories include career, computers,



Popular author Stephen King is publishing his book "The Plant" online, and each new installment sells for \$1.

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■ **Textbooks Online.** There is increasing interest in online textbooks. Computers and the Internet offer a unique opportunity to textbook publishers and writers to enhance the printed page with multimedia and audio content and to add interactivity to their titles. We looked at one organization working in this area, the netLibrary.

netLibrary has an eTextbook section which is a learning portal for students where eTextbooks are made available online. The eTextbooks contain the textbook text and images and can be enhanced with interactive and multimedia content. Students can search the textbooks, hear glossary words pronounced for them, and link to related Web sites and supplementary materials. The textbooks can even incorporate quizzes so students can be tested and then moved to the appropriate reading material. Teachers and professors can embed their

own comments into textbooks, letting them customize the text for a particular class. The netLibrary also provides a 'whole classroom' experience by letting students interact with teachers and other students via e-mail and bulletin boards. [E]

by Helen Bradley

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Who Wants To Be A Multimedia Player?

Discover Music & Video On Portal Sites

The latest Christina Aguilera MP3, concert, or music video. The black-and-white version of "Little Shop of Horrors" or a trailer for "The Cell." NPR's "All Things Considered," "Dobie Gillis," The Bears vs. Broncos game, and the audio version of "A Passion for Life: The Biography of Elizabeth Taylor." No matter what form of multimedia you're looking for, it's probably on the Internet. The big question is: Where do you begin to look for it? You could wade through countless search engines, pawing through a million links looking for a select video or audio clip. Or to be a true multimedia "player," swing on by a multimedia portal.

These all-in-one sites serve up a wide range of streamed and downloadable audio and video treats, organized so you can easily search for what you're looking for, or drill down through categories and browse. Many sites now offer special customization features, letting you set up your own home page to spotlight media that interests you. Those with DSL (Digital Subscriber Line), cable, or faster connections will find more broadband sections offering lots of high-bit action (top-quality video clips, movies, etc.). Although a certain amount of uniformity runs through all these sites (both in the types of content they carry and



the way the content is displayed), each one is a unique portal, a fact made clear by the player-driven big three: WindowsMedia.com, RealGuide, and QuickTime.

WindowsMedia.com
<http://windowsmedia.com/mediaguide/default.asp>

WindowsMedia.com is a guide for users of Microsoft's multimedia software: the

Windows Media Player. In association with such content providers as CNN Interactive, CNBC/Dow Jones Business Video, Capitol Records, Bloomberg LP, and more, WindowsMedia.com provides Windows Media Player users with a wide range of entertainment and information resources.

The front page of the Web site gives you access to spotlight features, top 10 lists, and audio and video in categories such as Art, Business, Lifestyle, Sports, and TV. Clicking a category title brings you to a Web page stocked with hyperlinks to featured Web sites, headlines, and other information within that category.

Four tabs along the top of the page give you access to the four primary sections of the site: Home, Music, Radio, and Broadband. Home is the front page of the site, where you'll find the latest and best multimedia, links to categories, etc. The Music section provides video and music downloads, artist profiles and interviews, links to other music sites and more. Music and videos are arranged by category and artist, so you can easily find what you're looking for. The Radio section features more than 1,600 stations arranged by format and location, and Broadband lets you search through a number of high-bit audio and video resources.

You can easily bookmark the material you access the most with the Windows Media Player, and the latest version of the player features close integration with WindowsMedia.com in its ability to search for multimedia, organize and store songs and artist information, and more. (NOTE: See sidebar "The Players.") Although most of the material on WindowsMedia.com is free, some content, such as World Wrestling Federation fights, is available on a pay-per-view basis.

RealGuide
<http://www.realguide.real.com>

RealGuide is a site built for users of RealPlayer, by RealNetworks. Even though a lot of this World Wide Web site will seem familiar after visiting WindowsMedia.com, there are a number of subtle differences. One of the biggest is the MyGuide feature, which lets you custom-build a home page and select content based on your bandwidth, preferred top 10 list, and calendar of events entries.

RealGuide also offers categories such as Games, Music, News, and Sports. These are listed along the left side of the front page, which tends to make them more accessible than

WindowsMedia.com's placement along the bottom (scroll, scroll, there they are). Special sections such as MusicNet give you access to music, videos, and MP3 files, and Take5 provides a show of interactive "bits" that you can easily run from the Windows Media Player.

Like WindowsMedia.com, the RealGuide features a special broadband section for those with screaming-fast connections, a variable top 10 list that lets you see top downloads for movie trailers, music, etc., and the ability to search the entire site for titles, artists, and

events. RealGuide also offers selections that require you to shell out money to view them, but unlike WindowsMedia.com's pay-per-view format, RealGuide opts for a much more structured subscription service called GoldPass (NOTE: See the "GoldPass" sidebar.)

The Players

You know where to find audio and video files of every size, shape, and color... now what do you need to play them? Each of the three following players comes with its own portal stocked with multimedia content, so any one will give you a rich, and free, experience. To gain access to the most content, you may want to consider stocking your hard drive with two or more of the players, but be forewarned: These all play a wide variety of file types, and each is sure it should be the default player for all media types and will try to claim them as its own. Largely, they are pretty polite about it; each player asks if you'll permit it to reign supreme. You can set which media players play which file types from the players' preference or options dialog boxes.

Windows Media Player

<http://www.microsoft.com/windows/windowsmedia>

Microsoft's Windows Media Player 7 is the first player to offer all-in-one integration, letting you play and burn CDs, play audio and video files, tune into Internet radio, transfer music files to portable devices, browse and search the Windowsmedia.com guide from within the player, and access a media jukebox. With one application, you can now meet a lot of your multimedia needs, including managing and storing audio, video, and radio; copying entire CDs to your PC; and even creating your own

custom CDs from your personal music collection.

Windows Media Player 7 comes with a lot of toys, as well. Video controls such as brightness, contrast, saturation and hue give you fine control over video quality. Two- and three-dimensional animations, or visualizations, let you set up your own bizarre light shows that pulse to the musical beat. And what a beat! SRS WOW effects and TruBass add deep bass, dynamic range and improved sound. A 10-band equalizer lets you tinker with the sound even further. A number of different skins let you drastically change the way the player looks and feels, and you can download more skins and visualizations from the Windows Media Player Web site. The player also can access the All Music Guide, a database with artist information, ratings, and reviews.

Users of Windows Me will find Windows Media Player 7 already heavily integrated into their system. Users with earlier versions of Windows will probably find some form of the player already on their computers, but they can download the latest version for their operating system from the Microsoft Web site. There is also an earlier version for Apple computers.

RealPlayer

<http://www.real.com>

In terms of features, RealPlayer 8 is quite similar to Windows Media Player 7, but it breaks its product down into a couple of different parts: RealPlayer 8 and RealJukebox 2. RealPlayer lets you play audio

and video files, listen to more than 2,500 radio stations, and it gives you easy access through its interface to special Channels (from content providers such as CNN.com, DiscoveryOnline, and more) and the interactive Take5. Like the Windows Media Player, it gives you visualizations such as Nebula and Annabelle The Sheep (see her eat, see her boogie) to keep you mesmerized while you're cranking out National Public Radio.

RealJukebox lets you play and record audio CDs and makes it easy to find and download music, manage music, track information, and more. It also provides support for portable music players.

The Basic package is free, and when you go to download it, you're given several download options, including a minimum version (4.4MB) that just contains Real-Player and a complete version (11.6MB) that bundles Real-Player with RealJukebox, Net2-Phone, RealDownload (an application that makes Internet downloads easier and faster, and lets you pause and resume downloads), and more. If you want a player with a richer feature set (including enhanced picture controls and a full-sized graphic equalizer), the RealPlayer 8 Plus is available for \$29.99.

Versions of RealPlayer exist for the PC, Mac, and other operating systems.



RealPlayer 8 gives you easy access to special features such as Channels and Take5.

QuickTime Player

<http://www.apple.com/quicktime/download>

QuickTime has long been a complete and outstanding technology for handling video, music, animation, graphics, 360-degree virtual reality scenes, and more, and the QuickTime Player (now up to version 4.1) puts a very attractive interface on the package. The player lets you experience more than 200 kinds of media, and it has feature controls for treble, bass, and balance; a drop-down tray to store Channels and other Favorites; and more.

Although the Basic version is free, by spending a little more (\$29.99) you can upgrade to QuickTime Pro, which provides you with the tools to create and edit music and movies, compress media and add effects to it, and save media in dozens of different formats. QuickTime 4.1 is available for many Windows systems and for Mac OS 7.5.5 or later. □

QuickTime

<http://www.apple.com/quicktime>

The last of the player-specific portals we cover is the QuickTime portal, which is built around the cross-platform QuickTime Player by

Apple. QuickTime offers content broken down into three areas: Movie Trailers, Hot Picks, and QTV (QuickTime TV) Channels.

Movie Trailers features teasers of recent and upcoming movie releases in its Now Playing section, and lets you browse through releases by studio.

Hot Picks provides you with the widest array of content on the site. Under the Hot Picks umbrella, you will find events, games, sports, music, radio, news, and much more—a kind of potpourri of links that send you out to other Web sites or to topic pages onsite (Music, Education), which then break down into hyperlinks to content on other Web sites.

The QTV Channels section incorporates the greatest integration with the QuickTime Player you'll find on the site. Here you can select a variety of "channel" options—including top content providers such as Rolling Stone, CNN's Hollywood Minute, FoxNews, HBO and more—all of which you can store as Favorites in the QuickTime Player tray for quick access.

Yahoo! Events

<http://www.broadcast.com>

Broadcast.com, a streaming portal, has combined with Yahoo!, which has one of the largest events directories on the Internet, to form Yahoo! Events. Putting a Yahoo! spin to the former Broadcast.com has yielded a multimedia portal with an immense collection of content that you can play with either RealPlayer or Windows Media Player.

With many clips, you even get your choice between the two players, but to fully enjoy all the content available on this site, make sure you stroll into it with both installed.

At the very top of the front page, you'll find a Spotlight section that brings you upcoming events in several areas, including

Entertainment and Sports. The Categories listing on the left side features a number of different topics such as Business & Finance, Cultures & Lifestyles, News, Politics, Sports, and more.

Clicking any of these will bring you to a page for that topic, which offers topic-related Spotlights and additional subcategories in the topic (Home & Living breaks down further into subcategories such as Automotive, Decorating, Gardening, etc.).

Click one of these bottom-level subcategories and you will see headings such as Today's Events, Upcoming Events, and Archived Events, where past events are available on-demand. Although

this structure can vary a bit from category to category, it's largely consistent and makes finding things on the Web site quite simple.

Another larger section of the Web site is its Featured Broadcasts section, which lists various media areas that you also can find along the left side of most top- and middle-level pages on the Web site (including the front page).

Radio. This area of the Web site lets you browse through stations by format or search through them by keyword, such as Country. Clicking through to the station listing will give you an idea of which media players are available for that stream, as well as where the geographic location of the station.

Television. Although slow to embrace the Internet, television is still represented by a handful of stations broadcasting full-time, and many more stations that put a select portion of their programming—usually local news or news shows—online. You will find links to many stations here.

Broadband. As with other World Wide Web sites, those with really fast Internet connections will find high-bit movies, films, and music in the Broadband section. Unfortunately, those with 56Kbps modems need not apply.



Windows Media Player 7 lets you download a variety of skins from its Web site to completely customize your experience.

Video. The Video section of the site covers quite a bit of video area, including music videos, education materials, movies, and more.

CD Jukebox. Although you won't find anything here that is riding high in the pop charts, you will find a tremendous collection of full-length albums in categories as diverse as alternative, Celtic, children's, funk, punk, and techno/dance.

Audio Books. The Audio Books section of the site, while certainly not unique to the Internet, is notable for its size and scope. Genres such as Biography, Poetry, Romance, and Philosophy share space with author profiles, speeches, and more.

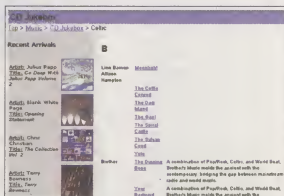
If you're uncertain whether you have the proper equipment to enjoy the multimedia content, Yahoo! Events can help you find out with its Test Your Player section. If you have trouble playing the Windows Media Player or RealPlayer test files, Yahoo! Events can assist you with configuration, or point you in the direction of the latest downloads for these players.

StreamSearch

<http://www.streamsearch.com>

Calling itself "The remote control of the Web," the StreamSearch Web site features a 2 million hyperlink strong multimedia database offering content in a variety of speeds and formats such as RealPlayer, Windows Media Player, QuickTime, and Liquid Audio formats. Both speeds and players needed are conveniently listed on all clips, so you know at a glance whether you will be able to play them.

The front page of the Web site gives you easy access to new additions (look under New Today); Most Popular downloads in the areas of movies, music, and sports; and a



Among the features of Yahoo! Events is the ability to play a wide range of full-length CDs in various formats.

channel bar at the top of the Web page that hyperlinks to Movies, which contains trailers, interviews, and shorts; Sports, which has game-day previews, news, and interviews; Radio, which lets you browse by region and format; and Live Events in many different areas. Most channels follow the front page format of offering new content and most popular downloads right up top.

In addition to browsing through the audio, video, and broadband materials, you can also run keyword searches that you can narrow down to specific media types and formats; this is a real plus if you are just looking for files to run on a single player.

Like the *RealGuide* Web site, *StreamSearch* lets you create a customized home page called *My Streams* so that only genres, formats, or styles you specify will appear. (You can access this feature by clicking the *My Streams* hyperlink in the channel bar.) And like *Yahoo!* Events, a "Player Sniffer" feature can probe your Web browser (but it does not touch your hard drive) to see if you have the necessary equipment to play specific media formats on the *World Wide Web* site.

GoldPass

Calling it the "logical next step for RealNetworks, and an important step for the industry," RealNetworks launched its subscription service, GoldPass, on Aug. 15, 2000. This all-in-one media subscription service gives users of the RealPlayer Plus premium content; automatic software upgrades; and exclusive Real.com services, help, and support for \$9.95 a month. The "premium content" includes special programming from providers like ABC-NEWS.com, exclusive videos such as SI Swimsuit 2000, and on-demand concerts from the House of Blues (Berlin, Duran Duran, etc.). RealNetworks is hoping

that this is the shape of things to come, but is it?

There are many battles presently underway that may determine how a lot of multimedia is accessed over the Internet, not to mention in what form it comes. MP3-sharing sites have taken a lot of the flack, with lawsuits by the Recording Industry Association of America and Metallica's actions against the file-sharing software Napster leading the way. Microsoft, meanwhile, is trying to diffuse the whole situation by supplanting the MP3 format with its own WMA format. How this all will shake out is far from clear.

By tying a monthly plate of special content to a variety of services, RealNetworks may see some

success with its formula, but it's hard to imagine much money flowing over this issue yet. Multimedia on the Internet is still an emerging technology, but when broadband is more widespread and the media and delivery systems become more controllable, subscription services such as GoldPass may do quite well if they package their multimedia with additional perks like enhanced software and services.

Web sites that attempt to make money strictly through their multimedia will probably find more success with a piecemeal structure, charging users by track, performance, or movie. □

streamed multimedia to Internet users. The Channel Guide on the iBeam site links to sites in various categories, including:

- Lifestyle: eHow, PixelWorld Beach Cam, The Howard Sheldon Show
- News: MSNBC Cable News, Prowebcast
- Sports: Boxingline.com, Quokka Sports
- Entertainment: AdventureTV.com, IFILM, BreakTV.com
- Music: NetRadio, Launch.com, Cable-Music.com
- Special Events

In the past few months, multimedia portals have made a slight shift toward offering more content at a higher bit-rate, but they still cater by and large to dial-up users. There's also been a bit of fraying around the "free" edge as portals experiment with pay-per-view features and subscription services.

Barring a major technological shift that will suddenly make broadband more widespread, the appearance of faster media on these sites should be slow, paralleling the growth in the percentage of audience that can view them.

And the money angle? There are many forces at work here, but so long as so much multimedia is available for free on the Internet, and the potential market for broadband remains relatively modest, it's hard to envision a traditional pay-per model being a huge hit. But as faster connections proliferate and online multimedia content grows, chances are that someone, somewhere will find a way to make a profit. **LS**

by Rich Grav

iBeam

<http://www.ibeam.com>

We've seen several multimedia portals that have been built around a specific media player. The final portal we look at is one that was actually built around not a player, but an infrastructure. iBeam Broadcasting uses MaxCaster media serving systems to transmit multimedia to various Internet service providers. This system makes it possible for streamed content to reach you without it having to travel over the Internet, making possible faster stream.

In addition to providing streaming services for the general business community, iBeam also provide them for a number of Web sites that specialize in providing



Apple's QuickTime Player provides media content in the form of Movie Trailers, Hot Picks, and QTV Channels.

The MP3 Explosion

Controversy Continues, But That Doesn't Deter Users



Who would have thought a three-letter computer filename extension such as MP3 could have become almost synonymous with controversy? MP3 (MPEG Audio Layer 3) files are a type of compressed audio file that let CD-quality sound compress into a digital file at roughly a 10-to-1 ratio. This makes it possible to store an average CD track with only a few MB (megabytes) of drive space, depending on the length of the track. (A four-minute song typically requires about 4MB.)

You can play MP3 files with a PC and an MP3 player such as Winamp (<http://www.winamp.com>). Because MP3s make listening to your favorite songs without CD-swapping easy, they are popular in the office, home, or any place where being a double-click away from your favorite music is handy.

Additionally, recent technology in the form of portable MP3 players has made it possible to take MP3 files anywhere. MP3 Players such as Diamond's RIO (<http://www.diamondmm.com>) or Creative Labs' Nomad (<http://www.creat.com>) connect to a PC via serial or USB (Universal Serial Bus) cable.

Once connected, users can copy MP3 files from the PC's hard drive to the player's

memory, which can usually store roughly one CD worth of music. Owners can then create custom selections of their favorite tunes and take them on the go. Newer MP3 players, such as Creative Labs' Nomad II MG, also have built-in FM tuners so you can use them as voice recorders. MP3-playing capabilities are already sneaking into standard home and car audio, as well, and they may eventually become a standard feature for all consumer audio products. Car stereos with MP3 capabilities have recently emerged on the market; for example, check out the CDC-MP3 car stereo from Aiwa (<http://www.aiwa.com>).

With the many conveniences MP3 offers, it's no surprise they have taken hold as the popular Internet audio format for our increasingly digitally empowered world, and there is no shortage of consumer demand for it. If there were, odds are the Recording Industry Association of America (RIAA) wouldn't be raising such a stink about it.

■ **Where To Get MP3 Files.** Fortunately, MP3 files are available from a variety of sources, all of which are perfectly legal (as of this writing, mind you). You can

download many free, and others are available on a pay-for-play basis, usually for as little as 99 cents.

One word of caution, however: Performing a blanket search on the Internet for "MP3" files will most likely yield a glimpse of the Internet's dark side. This is because many illegal (or at least questionable) distributors of MP3 files on the Internet also illegally distribute other works, such as pirated software (commonly known as *warez* in the Internet vernacular), as well as material that, legal or not, is definitely not suitable for family or workplace environments (pornography, for example). If you want to avoid potentially disastrous and/or embarrassing searches, read on for some suggestions.

Once you find a good site from which to download MP3 files, you'll find that most sites operate in roughly the same fashion. From the home page, you'll typically select a musical genre first, such as Rock/Pop, Alternative, Jazz, Classical, etc. From there, you'll usually be taken to a page with songs of that genre (sometimes subgenres will also be offered). Most of these will be available as free downloads, although some sites charge 99 cents per file. Sites charging a small fee, however, usually have a link available so that you can play a streaming audio preview of the song and, in essence, "play before you pay." Many, if not most, MP3 sites also sell CDs, post MP3 news, and provides album reviews and articles about the music scene in general.

Keep in mind that most MP3 sites will not feature as much music by mainstream artists as you may like, so if you're looking for the latest hit by Britney Spears, for example, you probably won't find it on any of these sites due to copyright laws. Many MP3 sites feature solely independent artists, although some feature a good mix of independent and mainstream artists, as well.

MP3 pundits are probably already familiar with MP3.com (<http://www.mp3.com>), which has recently been besieged by legal battles but is still alive and kicking. MP3.com was among the first mainstream MP3 distribution sites offering downloadable MP3 files, as well as news, information, and musical events calendars. MP3.com uses an innovative compensation paradigm, by which they compensate artists every time one of their files is downloaded. Additionally, MP3.com offers Digital Audio Media CDs for sale, which include MP3 files of every CD track.

Of course, even if you're new to MP3, you've likely heard of Napster (<http://www.napster.com>), also recently locked in legal struggles against the RIAA. Napster doesn't act as a direct distributor for MP3 files, but it creates Internet file-sharing software, which makes it easy for MP3 users to share their files.

Scour (<http://www.scour.com>) offers a similar program called Scour Exchange, another Internet file-sharing program. Scour Exchange, however, goes beyond MP3 files and allows the easy exchange of video and graphics files, as well. Like Napster, Scour has come under fire from the RIAA and the Motion Picture Association of America (MPAA). Even though all the MP3 files on Scour are (presently) legal, using Scour Exchange (or Napster) lets users potentially access MP3 files of copyrighted works stored on the computers of other users. Because everyone wants to protect themselves legally, be aware that you can use Scour's powers for good or evil, so you need to to make that choice.

■ **New Recruits.** Although you may already be familiar with MP3 providers such as MP3.com, Scour, and Napster, we wanted to introduce some relative newcomers to the MP3 scene, as well. Some less familiar names in the MP3 industry are Vitaminic (<http://www.vitaminic.com>), Epitonic.com (<http://www.epitonic.com>), MP3now.com (<http://www.mp3now.com>), EMusic (<http://www.emusic.com>), and MUSICBLITZ (<http://www.musicblitz.com>).

MP3now.com. From MP3now.com's home page you can access links to the MP3 Beginner's Guide, which offers instructions for playing, making, finding, and downloading MP3 files. Additional sections include MP3 Top 30 Search Engines, MP3 Software, MP3 Hardware, MP3 Downloads, MP3 Info, MP3 Articles, and MP3 Community.

MP3now.com is a treasure trove of MP3 information, although, it is more of a hub of MP3 information than an MP3 distribution site. Selecting the MP3 Download link produces a list of musical genres, but once you select a genre, it produces a page of links leading to band Web sites falling into that genre is produced. This specified genre page

also includes links to other sites with music in that genre (such as MP3.com).

MP3now.com has a wealth of information for putting users in touch with MP3 files, but because it does not act as an MP3 distributor, it maintains a safer distance from the controversy surrounding MP3. This doesn't mean you can't find MP3 files through MP3now.com, however.



MP3.com was one of the first mainstream MP3 distribution sites offering downloadable MP3 files, and despite its ongoing legal battles, it still remains popular today.

If you're purely on an MP3 file-seeking expedition, you can use MP3now.com's MP3 Top 30 Search Engines link to enter a search phrase (such as the name of a song or band) and use MP3now.com to find the music you're looking for through a variety of search engines. Such engines include Lycos MP3 Search (<http://mp3.lycos.com>), Findsongs.com (<http://www.findsongs.com>), or Palavista (<http://www.palavista.com>).

MP3now.com also has boatloads of information about MP3 files in general. For example, the Beginner's Guide discusses how to make your own MP3 files with your PC at home. The MP3 Software section guides new users about how to download and use MP3 Players. The MP3 Hardware section links to <http://www.mp3hardware.com>, which contains reviews and previews of MP3 players, such as Diamond's RIO. You can find information about MP3 files, including technical details of the file format and issues of legality, under MP3 Info. Another interesting aspect of MP3now.com is its Articles section where it regularly posts MP3-specific news, editorials, and articles.

EMusic. Users wanting to dive straight into MP3 files should check out EMusic, which deals exclusively in MP3 files. You can download some for free, but you have to pay to download most files. However, you can listen to each file before you download it through the site's streaming audio previews. In addition, unlike many MP3 distribution sites, you can find work by mainstream musicians such as the Violent Femmes, Elvis Costello, and the Mighty Mighty BossTones, just to name a few featured in the Rock/Pop category.

Like most MP3 sites, all you need to do at EMusic is select the music category you're interested in from the main page, and you're whisked away to a page dedicated to that genre. Once there, you can select links to featured bands and their albums. Each featured album has a selection of songs in MP3 format, you can download each song for 99 cents per track, and you can play each track's streaming audio sample before you decide to purchase it. Some artists' albums have tracks available for free, so if you don't mind digging a little, you can work through various offerings and locate some free tunes.

One of the interesting distribution methods employed by EMusic is the use of subscription plans. Subscription plans start at \$9.99 per month (purchased in yearly increments) and go up to \$19.99 per month for month-to-month subscriptions. Subscribing gives users *unlimited* access to downloading any MP3 files available from EMusic's site, and although many of its offerings are also from independent artists, you will see some familiar names such as Elvis Costello and They Might Be Giants, too.

Users choosing not to subscribe can still elect to download entire albums for less than the cost of the same CD bought retail or download specific tracks at the rate of 99 cents per track. Although it is usually more cost-effective to download an entire album, keep in mind that this could take several hours on a typical modem connection. Still, if you have time to spare (or a high-speed broadband connection), it can be less expensive than purchasing the CD, particularly if you have the equipment for making your own audio CDs on your PC.

Vitaminic. Vitaminic has been operating in the United States for only six months, and it has the quickest and most easily navigable site compared to others previewed here. Because

of the efficiency in its design, visitors should really appreciate the speed with which they can find and download tracks.

For starters, Vitaminic features the top 10 downloaded MP3 files on its home page, and once you select a music genre, you'll instantly receive a list of the most downloaded songs for that genre, as well as links to subgenres. Even if you switch to a new page, a small box on the upper right links to the music genres, so you're never more than a click away from song downloads.

Clicking the Classical Music link takes you to the top 10 classical downloads, with links to sub-categories such as Contemporary, Baroque, and chamber music. You can preview all songs through streaming audio (by clicking the small speaker icon) or downloaded as MP3 files (by clicking the small arrow icon). If you select the FAQ (frequently asked questions) link from the main page, or even click the About Vitaminic link to get more information, the song genre list still display in the upper right corner.

This streamlined approach makes Vitaminic ideal for impatient MP3 hunters, as well as those of us still running on slower connections. Many MP3 sites could learn from Vitaminic's minimalist approach, and modem users in particular will appreciate it.

Like many MP3 sites, Vitaminic also offers news and informative articles on MP3 in general, but visitors can bypass all of these to get to the files. One of Vitaminic's key goals, however, is to provide musicians with a forum for promoting themselves and selling their music, which is similar to what EMusic does some respects. Musicians who register on Vitaminic will receive a promotional Web page and a site for uploading their music, plus they are still able to sell their music through other channels. Vitaminic's contracts do not lock musicians into a tight-fisted distribution model. As a newcomer, Vitaminic is a promising step towards digital music distribution and a great place to start hunting for MP3 files.

Epitonic.com. Another site, Epitonic.com, covers a narrow range of musical genres compared to other MP3 distributors, but it still

offers a respectable selection of music in the Rock, Electronica, Experimental, and Hip-Hop categories. You can download most music files free of charge, and the files that do require payment are available for as little as 25 cents per song.

Additionally, Epitonic.com features artist and label reviews, an album review archive,

from unfamiliar musicians much easier. MUSICBLITZ could stand to streamline its site a bit, however. Its pages are too crowded and getting to the actual download page for a song requires clicking through three links. Although site navigation is only mildly annoying for experienced users, new users may find it a bit more difficult to cut to the chase and get to the files.

One of Vitaminic's key goals is to provide musicians with a forum for promoting themselves and selling their music.

and a video section featuring original concert footage, interviews, label-produced works, and video reviews.

MUSICBLITZ. MUSICBLITZ, on the other hand, offers a more expansive selection of music than Epitonic.com, but it still focuses primarily on Rock, Pop, Reggae, Alternative, Jazz, Blues, and contemporary music. If you're looking for classical music or something a little more "worldly," try Vitaminic, MP3.com, or some of the other sites. MUSICBLITZ does offer a good mix of well-known, mainstream artists such as Paul Simon, as well as several independents.

You can quickly find downloads through genre links, which not only present the downloadable songs, but also provide professionally written and novice reviews (from site visitors) of each song. This is a nice touch and makes selecting MP3 files

■ **In The End.** Despite the controversy surrounding MP3 distribution, CDs haven't lost their popularity, having reported the biggest sales in their history in the first half of 2000.

The biggest challenge will be finding a solution to meet the increasing demand for both MP3 files and CDs. The root of this problem is the RIAA doesn't move as quickly as the technology industry and has yet to figure out how to get into the MP3 business, meet demand, and make a buck all at the same time.

Legal victories or not, it's probably just a matter of time before the RIAA and associates join the revolution instead of constantly taking it to court.

In the meantime, entrepreneurs are taking risks implementing their own solutions. EMusic's subscription plans, for example, might pose a viable and profitable solution for keeping copyright holders happy by making them some MP3-related money, meeting consumer demand for digital audio and making MP3 distribution a profitable business.

Unfortunately, this struggle leaves us all—even the most legal-minded of us—still basically operating "in the gray" until technology providers and copyright holders can find some common middle ground and meet consumer demand with a fast, easy, and consumer-friendly solution. Whether this takes the form of subscription-based MP3 sites for downloadable files, payment-per-file-based MP3 sites, or some future method of distribution and compensation yet to be created, we'll just have to wait and see. Legal controversy aside, the MP3 file format is a thriving standard, and MP3 distribution sites show no signs of slowing down. **LE**

by P. Bryan Edge-Saloi



to cousin Kenny in Toledo.



Some images you'll never find on a postcard. Like the ones you take yourself with the new digital Coolpix® 800. It's lightweight, compact, and a breeze to use. Sharp, astounding images are made possible by 2.11 megapixels of resolution, a 2x Zoom Nikkor lens, and your boundless curiosity. Now add the precise control you expect from any Nikon. It's a small, cool, digital world. Capture it, then e-mail it. Visit nikonusa.com or call 1-800-NIKON-UX.



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The Coolpix 800.

Tune Into Radio Online

Listen To Broadcasts Via Your PC



deliver new music before you hear it on traditional radio.

In the last few months, we've seen the next stage of evolution for Internet radio. Web sites now offer dozens, or sometimes hundreds, of channels of every genre imaginable. Are you having a hard time finding those ethnic folk songs? Now you can probably find a 24-hour channel broadcasting it. Are you in love with British underground trance music? Internet radio broadcasts have just made

your dream come true. It is all available via the online mega-stations.

Many sites are taking it a step further now by empowering listeners to broadcast their own radio stations. This not only allows normal citizens a chance at semi-fame through an online following, but it also offers listeners a bevy of additional choices, sliced and served in any genre, or in a blend of genres (like Caribbean Funk Jazz, for instance).

■ **radio.sonicnet.** With a mission to "ignite, inspire, and nurture the passion for music," sonicnet.com is part of the world's leading music content company, MTVi, home to other sites such as MTV.com and VH1.com. You may remember some of its television commercials with famous artists touting sonicnet.com as "Me Music." The big selling point is an ability to program your own station, that is, select the genres of songs you like, their relative frequency, and listen to them on demand.

To get you warmed up, radio.sonicnet (<http://radio.sonicnet.com>) offers more than 40

preset stations, covering 10 genres of music programmed by music experts. Hoping to cash in on popularity of artists, radio.sonicnet features Guest DJ Stations created by music celebrities such as k.d. lang and Fastball, as well as non-music celebrities such as American soccer star Cobi Jones and cartoon character Daria.

The radio player on radio.sonicnet uses either the Windows Media Player or RealPlayer G2. It even allows you to skip to the next song while viewing the artist, song title, album title, and running time.

Once you sign up with the service, you can create your own radio station by putting together a profile for your station that details the genre breakdown and frequency of play. Once the station is created, you can go through playlists and rate individual artists from 0 (not played) to 5 (most played). The lists are quite extensive and the site depends on your return visits to continue honing your station to your own perfection. To make sure your favorites are included, or that someone is excluded, you can search for specific groups and rate those artists for your station. The site includes instructions on how to link your radio station to another site, allowing you to put a virtual radio station on any site on the Web.

■ **FMcities.com.** While people may still consider the Internet an "alternate" media type, FMcities.com (<http://www.fmcities.com>) is going after the traditional radio market in a big way. Not content with his nine northern New York state radio stations, Tim Martz set out to launch 2,500 Internet radio stations by October under the umbrella of FMcities.com. With 1,350 at press time, Martz Communications seems well on its way toward meeting its goal.

FMcities.com targets the 50 major markets with 50 stations for each market. Each city gets its own affiliated Web site (such as FMchicago.net, FMBoston.com, FMphoenix.com, etc.) that acts like a radio station, delivering streaming local and national news, local weather, traffic, and even a stock ticker and airport updates. FMcities.com is banking on people using their site as an entertainment and news portal, much like they would listen to the radio all day at work or at home on the weekends.

The key to the site's success is 50 streams (they call them stations) of high-quality music in different radio formats from Top 40 to Rock to Classical. Not only can you get traditional formats such as Smooth Jazz and 80's Hits, but the sites offer not-so-traditional radio formats such

You probably remember the first time you heard music on the Web. It was your friend's personal home page, wallpapered in psychedelic color patterns, and an abrasive, synthesized WAV file of Beethoven's "Für Elise" was embedded into the background. Broadcasting music online has come a long way in the last five years. New music formats specifically developed for Web delivery, such as RealNetwork's Real media files and MP3 files (MPEG Audio Layer 3), have brought us higher-quality sound. Higher bandwidth connections have given us better connections for streaming audio files and achieving faster downloads.

Radio stations found that they could broadcast their signals online, marketing to those of us who spend the day with a computer but without a radio. And now that computers can take the place of radios, these online broadcasts finally have an audience. Internet-based radio stations began popping up not too long ago, often using the latest technologies to

as Reggae and One Hit Wonders. FMCities.com ensures you that music professionals, not engineers, program the stations, for the best possible programming.

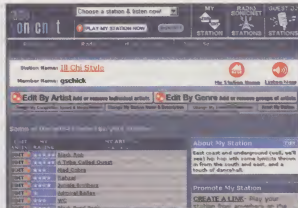
The sites use the Windows Media Player through any of the major browsers (Netscape Navigator, Microsoft Internet Explorer, or America Online). These radio stations let you pause and skip songs, preview upcoming selections, as well as purchase the current selection through a partnership with CDNOW.

One edge that FMcities.com has over traditional radio stations is the ability to continue to listen to music on the site while browsing the news and other information that a normal station would take breaks to deliver. The stations will broadcast for the first three months without commercials and plan only limited commercial interruptions in the future, giving traditional radio even more to worry about.

BroadcastAmerica. BroadcastAmerica's (<http://www.broadcastamerica.com>) goal is just as grand as many other dot coms these days: to become the world's leading Internet entertainment network. The company began as a network of radio stations in Maine providing funding, promotion, and content for the site. As the site became more popular, it turned to a nationwide audience and expanded its offerings. What it has become, in essence, is a portal site for media junkies. If you like radio, you will love this site.

BroadcastAmerica offers streaming feeds of dozens of radio stations from across America, and has even expanded with some international stations. Unlike some of the other sites that simply program their own collections of songs, the audio streams here are commercial and college radio stations that partner with BroadcastAmerica to provide their programming live on the Internet.

In addition to providing music stations in 17 formats, the site delivers sports, news, and talk radio stations, and even some television news video broadcasts. BroadcastAmerica also provides some original content with special interest audio such as daily horoscopes, continuous stock market updates, health and household advice.



We had fun creating our own radio station with radio.sonix.net. It lets you put together any type of profile you want, including genre choices, artist preferences, and frequency of play.

and specialized news updates. The recorded segments work with both RealPlayer and Windows Media Player. Plus, CDHut offers direct links for enthusiasts who want to purchase music and movies online.

■ **LAUNCH.com.** You may have seen its CDs floating around music stores or included with magazines: *LAUNCH* is an electronic music magazine produced on CD-ROM that includes audio and video interviews, concert footage, and video game demos in magazine format. **LAUNCH.com** (<http://www.launch.com>) is an offshoot of the magazine, providing a broad array of audio, video, and music entertainment news.

LAUNCH.com is a great place to find music videos; it has more than 4,000 of them. LAUNCH.com also delivers concert listings and hosts chat sessions with well-known artists. The content at LAUNCH.com is

customized and music-oriented, similar to soniconet.com. Through its LAUNCHcast Web interface and Windows Media Player, you can design your own station by selecting genres of music you like and indicating the amount of each category you would like to hear.

Once your station is set up, you can go back and rate specific songs, albums, artists, or videos to be included or excluded from your station. You can also let other LAUNCHcast DJs or commercial radio stations' programming influence your station's selections. While connected to your LAUNCHcast broadcast, you can explore the rest of LAUNCH.com and interaction features to communicate with others at the site.

■ **RadioSpy.** RadioSpy (<http://www.radio-spy.com>) is one of those unique and empowering forces of the Internet that strives to be different. Instead of supplying streaming channels of different genres, this spin-off of the GameSpy video gaming network teaches you how to host your own station. It supplies the software and instructions; you supply the music and effort.

You start by downloading the RadioSpy software. You configure it with your e-mail address, a username, and connection speed. You also need an MP3 player; RadioSpy offers a link to Winamp (<http://www.winamp.com>). Once connected to the Internet, the RadioSpy interface displays a list of stations in one of 30 genres you choose. There, you sift through the hundreds of listings, simply clicking to listen. Don't like the song that's on? Click again to change the channel. You can bookmark your favorite stations, search for specific songs, view songs playing right now, or chat with others who are listening to the same station.

What is amazing about all of these stations is that RadioSpy does not run any of them. Individuals operate each station, many of whom were taught everything they know from the helpful hints of RadioSpy's DJ Tabasco. RadioSpy relieves itself of



FMcities.com targets audiences in major markets by creating an affiliated Web site that acts like a metropolitan radio station for a large city. These Internet stations deliver streaming local and national news, local weather, traffic reports, a stock ticker, and airport updates.

many legal concerns faced by broadcasters by giving away responsibility for station content and hosting to the individual running the station. They are actually delivering little more than a fancy list of links to individually hosted broadcasts. However, the irreverent site creators provide a thorough and well-documented article about legal concerns you should be worried about as a broadcaster. Check out the site sections on licensing and obscenity laws because with RadioSpy's system, you have to jump through your own hoops regarding licensing and paying royalties to be legal (<http://www.radiospynet.com/webcasting101/licensing.shtml>). For more information, see the sidebar, "Become An Online DJ."

■ **Live365.com.** Over 18,000 station signals are brought to you through Live365.com (<http://www.live365.com>), a site that bills itself as the "Earth's largest Internet radio Network."

What is surprising about the stations is that, like RadioSpy, every station on this site is an independent broadcaster—someone just like you. These independents broadcast their own MP3 files, but get a number of perks when using Live365.com, including free Internet storage space for the files and no licensing or fees. The site picks up the tab for the royalties of all the stations that broadcast through them, too.

You will find that many stations hosted on the Live365.com site are listed on RadioSpy's directory, as well. Live365.com has their own mega-list of broadcast links and will also accept links from broadcasts not hosted on their site. Trying to start its own "radio revolution," Live365.com provides the ability to broadcast live or in a continuous loop from the files you upload. Again, see the sidebar, "Become An Online DJ," for more details.

■ **Bandwidth Warning.** The streaming audio technologies used by Internet radio

stations consume a lot of processor power and Internet connection bandwidth. Problems can occur if your computer has a slow processor or the Internet has high traffic. You might suffer a stutter or momentary stop in the audio stream while the software buffers the stream again. Working in other applications while listening to Internet radio, especially when downloading Web pages (particularly on slower machines), may also cause stutter problems. Each system is different so experiment to see what you can get away with on yours.

For the best performance, use a high-speed Internet connection such as a DSL (Digital Subscriber Line) or cable modem. Some cable companies are limiting upstream bandwidth so check with your cable modem company for more information. [E]

by Greg Schick

Become An Online DJ

Sties such as LAUNCH.com and radio.sonicnet let you select songs from their databases and, in the process, customize your own song selection. But maybe you want more. Maybe you dream of your own radio station where you pick the songs, read the news, show off all your obscure musical knowledge, or let your uncle Joe play his banjo. You might even want an outlet for your own music. Or, you might just be one of those people who turns on the car radio, flips through all the stations, and finally says, "Why don't they ever play any songs I like?"

For all you closet DJs and musical directors, several companies have developed software to allow you to easily become the next Casey Kasum. The first step is to learn how to convert your CD files into MP3 (MPEG Audio Layer 3) format. You need something to "rip" the file from the CD and then encode it as an MP3 file.

MusicMatch Jukebox (<http://www.musicmatch.com>) is free software that will do both. Although this step will be the most time-consuming, it ultimately will make or break your broadcast. Remember that you can legally use MP3 versions of songs from CDs you have purchased, but you can't use MP3 files you obtained illegally. Both RadioSpy and Live365.com present a full discussion of your legal rights in broadcasting on their sites.

Now you need somewhere to host your site. RadioSpy has a list of broadcast-friendly ISPs (Internet service providers) on its site, while Live365.com offers to host the files for you. You can get 365MB (megabytes) of storage for free with the EasyCast Broadcasting from Live365.com (<http://www.live365.com/broadcast>). Since someone else is hosting your station so that it doesn't need to be served from your home computer, your station

stays online 24 hours a day for millions of Internet surfers to enjoy. RadioSpy's SHOUTcast and Live365.com's LiveCast allow you to broadcast live with voice-over announcing, on-the-fly playlist changes, and the ability to broadcast live performances. Live broadcasting can give you the ultimate radio rush.

The most recent entrant into the world of independent broadcast services is myCaster (<http://www.mycaster.com>). Download the software to program your own station, using your own personal collection of MP3 files. Once the station is running, you can use the software to adjust the equalizer levels or chat with listeners. You don't have to worry about finding an ISP with myCaster because all of its stations are hosted through its own servers and displayed on its Web site.

Programming your radio station is simple, regardless of whether you use EasyCast, SHOUTcast, LiveCast, or

myCaster. Just cast the files you want played into the software and place them in order. The live broadcast applications, SHOUTcast and LiveCast, conveniently allow you to change the list as the program is running.

Now, it's time to answer the questions probably crossing the minds of the serious DJs. If you're wondering about whether you can flex more muscle over the output of the MP3 files, we have another program for you to consider. Some of the broadcasters on Live365.com are using VisioSonic's PCDJ Broadcaster software (<http://www.pcdj.com>). Created with the Internet radio producer in mind, this software can rip CDs, encode MP3 files, mix audio tracks, play video and Internet radio, and broadcast your own music. Best of all, it's free. So, dig through the digital crates and rock the microphone; Internet radio is yours for the taking. [E]

Online Movies

View Films That Aren't Showing At A Theater Near You



Have you ever watched the Academy Awards and wondered where on Earth you could find any of those short and animated films that look so interesting? Until recently, seeing independent short films was an opportunity available only to a small group of people who took the effort to go to film festivals. Now, however, Internet users from Peoria to Bulgaria can enjoy the enormous variety of visual entertainment the world has to offer.

The Internet promised all varieties of culture an expanded audience. But while independent music and literature already had decent non-digital means of distribution, the nature of movie distribution—primarily through theaters, preferably packed ones—meant that only the movies likely to gain the widest possible audience were seen. That's why the recent proliferation of online movie-watching sites is so exciting.

And with more and more people getting the broadband access necessary to easily watch

these films, the number of sites has skyrocketed over the last year or so.

"There are more selections available, there's also better content and better technology—overall, watching movies online is a better experience than it was even six months ago," says Olivier Zitoun, founder and CEO of Eveo, one of several online film sites to launch this year.

There's a hitch, of course. Watching films on a 2-inch screen can be tiring, and if your connection to the Internet is over a modem, the quality can be close to unbearable. Still, for users with broadband access there are several movie sites that can provide a preview of an exciting new era of watching films that we, not studio heads in Hollywood, choose.

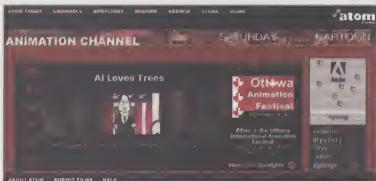
Most of the sites work roughly the same way. Some require you to register, others don't. Once that is taken care of, you surf around looking for a film, and when you find one you want to watch, you have to tell the site how you want to watch it. Usually, you'll get a choice between Windows Media Player and

RealPlayer, and possibly QuickTime. (See the article "How To Be A Multimedia Player" for more information.) That's the simple part. But you'll also have to choose a speed, which should be the same as the speed at which you're connected to the Internet. For example, if you have a dial-up modem, you should choose something in the range of 28Kbps or 56Kbps. If you have ISDN access you can choose 100Kbps, and if you have T1, DSL or cable access you can pick speeds of 200Kbps or higher.

Choosing a faster speed makes the viewing screen bigger, the size varying from under 2 inches to about 5 inches. But that much viewing area means much more data has to come into your computer. If you don't have the connection speed to support it, the film will be so jerky that it will look more like a slide show, there will be gaps in the sound, and you'll get messages like "Net Congestion, Buffering" while your computer tries to catch up with the amount of information it's being sent. Depending on the amount of Internet traffic and how quickly the images in the film move, you may be able to get away with watching it at a higher speed than your Internet connection. Animation, especially, is easier to watch on a dial-up connection than other kinds of video.

Just as standard Hollywood fare contains material that may be offensive, some online video sites feature material you may not want to see, but usually without the insulation of a ratings system. Stay alert when you visit these sites to avoid material you may object to, and don't let young children visit them unsupervised.

■ AtomFilms. The leader in the online video world is currently Atom Films (<http://www.atomfilms.com>). The site offers about 800 films, ranging from (be warned!) crude parodies of Hollywood blockbusters to the Oscar-winning "My Mother Dreams The Satan's Disciples in New York." It also features several series, like "Forty and Shorty," about two misfit preteen friends, one a black ghetto-dweller and the other a white trailer park resident, and the juvenile "Bikini Bandits," starring, well, gun-toting women in bikinis. These are cartoons, but they're obviously not for kids. Some episodes contain a warning about objectionable material. However, you can find film shorts for kids, like the viewer-acclaimed "Puppies For Sale," in the Family section. AtomFilms also houses a mini-site for the University of Southern California's School of Cinema Television, where you can see student projects by future George Lucas.



AtomFilms offers an extensive collection of video, including a special section devoted to animation. You can download a video and view it later on your PDA.

There are several ways to find films, which can make navigating the site confusing at first. Running your mouse over the categories at the top of the screen brings up several more subcategories. In the Atom Today section you can see either a list of the most-popular films or some that the AtomFilms editors want to showcase that day. Under Channels are certain genres, such as Animations, and Euro, with films from across the ocean. Spotlight brings up the site's specialty areas, such as the series and the USC mini-site. And under Search you can look for films by title or from a particular person or country.

Clicking any of these subcategories takes you to a page where several movies are featured. Clicking an individual movie takes you to that film's page, where you can see information about the film's director and cast and read reviews that previous users have given it. On the right side of the screen is a drop-down menu where you can choose which kind of media player you want to use and the connection

link at the bottom of the home page takes you to that section, where you can search for films either for the Palm OS operating system or Windows CE. There's also a link for you to download the video player, if your PDA doesn't already have one.

■ **iFilm.** The other major online film site is iFilm (<http://www.ifilm.com>), and it works about the same as AtomFilms. iFilm boasts over 10,000 films on its site, though many of these are actually found through links to other sites. It's a little easier to get around than AtomFilms—you just pick a genre of film you're interested in, such as action, comedy or documentary—then you're taken to the page with featured comedy films, the most popular comedies, etc.

There are also several films featured on the same page and a list of the most popular films among viewers. iFilm also has a broader scope than most online video sites, it has links to Hollywood news and other film sites on the Web.

speed. Selecting one will launch that program and start playing the movie.

Currently, AtomFilms is the only site that allows users to download films for later viewing on their PDAs or palmtop computers. A

■ **Eveo.** Eveo (<http://www.eveo.com>) has a slightly different niche, focusing on a few categories that aren't well represented among other online movie sites such as sports, travel, and music, as well as more traditional offerings like comedy, found in the Twisted section, and True Life, Eveo's documentary section. Because of the way this site is organized, potentially racy content is more difficult to avoid here than at some of the others, so be forewarned. The site has a distinctive look: When you visit it, the site will launch a new browser window that doesn't have any of the standard buttons like Back or Home, allowing more space for the site's content but making navigation a little trickier. Also, in contrast to most other sites that launch the media player as a separate application, to watch a film on Eveo you watch it on the browser screen, which has a little area carved out for the viewing space.

The main categories are laid out on the left side of the home page, and clicking one will take you to a screen with three videos in that category. It's not easy to see the first time, but those are not the only videos available—you have to click on the More Eveos link to get three more, and so on. Eveo also makes it a little easier to choose the size of the movie you want. It simply asks what type of Internet connection you have, so you don't have to remember whether your DSL connection is 100Kbps or 200Kbps.

■ **Sputnik17.** Sputnik17 (<http://www.sputnik17.com>) has the usual short film fare, plus a large selection of Japanese anime cartoons and alternative music videos. The links to each section are along the bottom of the home page. Again, the main section pages

How To Be An Online Filmmaker

If you're a film maker yourself, or if watching all these movies online has inspired you to try, there are a number of sites that can help you out. A good starting place is Cyber Film School (<http://www.cyberfilmschool.com>). It's still in beta testing, but it provides a pretty comprehensive array of services for an aspiring film maker.

The core of the site is the Movie School Encyclopedia,

which teaches you the basics of film making in six courses. It's sort of a multimedia textbook, with QuickTime videos illustrating the points made in the text. Just scroll down through the text, and when you come to a video screen, just click one of the buttons to play it and a separate QuickTime window will pop up. (If you want to use the site, you'll have to download the software.) And at the end of each course,

there's a multiple-choice test to check your progress. Because the site requires a good amount of bandwidth, impatient dial-up users may want to buy the course on CD-ROM for \$49.

Besides the Encyclopedia, Cyber Film School also has feature articles written for the beginning film maker, such as advice on how to get your first film job and an introduction to digital video. The Screening Room offers videos in QuickTime format, and augments them with articles explaining the

film maker's process, from how they develop themes to how they raise money.

A similar, but less extensive, guide is Exposure (<http://www.exposure.co.uk>), which, if you're too impatient for the Cyber Film Schools' six courses, has "El Mariachi" director Robert Rodriguez's "10-Minute Film School." Another site to check out is The Film Maker's Home Pages (<http://www.film-maker.com>). Once you've "graduated" you can start making a film. WebMovie.com (<http://www.webmovie.com>)

don't have all of the content the site offers, you have to either use the search box to find a particular artist or browse an alphabetical list of the offerings, broken up into several pages.

The site also offers several video stations, where you can just sit back and watch the preset program. The site has four channels: anime and film, and a variety music channel.

One convenient thing about Sputnik7 is that once you register, it remembers your preferred media player and connection speed, so you don't have to choose it every time. And like on Eevo, the media player is integrated into the browser window.

■ **SightSound.** SightSound (<http://www.sightsound.com>) carves out a different niche in the online movie world, focusing on feature-length films that have usually been released in more traditional formats. Many are straight-to-video films you've never heard of, but the site has some interesting independent films and the first commercial film to be distributed exclusively on the Internet: the sci-fi "Quantum Project" starring John Cleese and Stephen Dorff. This is the only major video site that you have to pay for—a typical price is \$2.95 for a five-day rental and \$9.95 to be able to view the film forever.

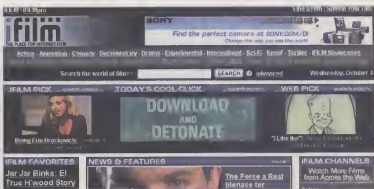
To watch one of the films you need to have a new version of Windows Media Player and a broadband connection—trying to download a full-length movie over a dial-up connection can tie up your phone line for hours.

Once you find a movie, after surfing through the various categories, you have a

choice of either previewing the movie or downloading it immediately. In either case, the site will examine your computer and your connection speed to make sure they're adequate. Once it is satisfied, it will start downloading the movie onto your hard drive where you can launch it as an executable file. If you've bought or rented the whole movie, starting it will bring up a window where you have to give your credit card information before you can actually watch it.

Other sites to explore include Film in a Cup (<http://www.filminacup.com>), StudioNext (<http://www.studiohext.com>), ZeroOneFilms (<http://www.01films.com>), FilmFilm (<http://www.filmfilm.com>), FilmDeli (<http://www.filmdeli.com>), Reelmind (<http://www.reelmind.com>) and Underground Film (<http://www.undergroundfilm.com>). A really extensive, and expanding, list of online movie sites is at <http://worldfilm.about.com/movies/worldfilm/msub-online.htm>.

Many sites say they plan to grow their library of films to provide an even greater variety for users. Many say they also plan to expand their cooperation with filmmakers, instead of just working with them once the film is done. For customers, that could mean a



The iFilm site boasts a collection of more than 10,000 films.

renaissance in short-film making and a greater variety of high-quality movies to watch. And it's almost certain, with the success of the top few sites, that many more sites filling more and more niches are bound to pop up.

Also, many sites plan to expand their offerings for handheld devices like Palm Pilots or palmtops running the Pocket PC operating system, so you can download movies before a flight or to keep handy for when you have to wait while your oil is changed. Some are looking into transmitting videos over wireless devices, as well.

The most important advances, however, will have little to do with the sites themselves. As users get faster access, the size of the screens and the speed of the images will increase greatly. That's when online video viewing will truly begin to challenge Hollywood and television for our eyes and hearts. **16**

by Joshua Kucera

.webmovie.com) is a comprehensive directory of services and products a filmmaker needs, from caterers to editing facilities to entertainment lawyers.

And when you have a film ready to show off, it's easy to submit it to any of the sites listed above. Each displays a link to a page that describes how to submit a film. Usually the two options are sending a videotape by snail mail, or if your film is on digital video or is a Shockwave Flash animation, you can send it by e-mail.

If your film-making aspirations don't go beyond making a passable video of your child's birthday party, there are also places for you to show your stuff. America's Videos (<http://www.americasvideos.com>) will post a video that you send them in VHS format on its site, and they also give you a page for friends and family to visit. You can restrict access to the page to only the people you specify so that strangers don't see your personal videos. It costs \$19.95 for 15 minutes or less of video,

and \$1 a minute extra for longer videos. The page stays up for a month.

4 Any Occasion (<http://www.4anyoccasion.com>) is a little more full-service, offering to build custom Web sites for your wedding, class reunion, bar mitzvah, etc., which can include streaming video. Memory Mountain (<http://www.memorymountain.com>) has templates for users to create tribute sites to passed-away loved ones or to celebrate special events, both of which can include video.

The Digital Fridge (<http://www.digitalfridge.com>), allows you to post videos (and pictures) either for the public or for only people you specify. As with Memory Mountain, the site doesn't allow you to mail a tape. Instead you have to upload your videos in AVI or MOV format. That requires specific video processing hardware and software, which may be beyond the scope of the casual user. **17**

Video Webcasts

Watch As Your Favorite TV Shows & Internet Broadcasts Stream To Your PC



In its early days, the World Wide Web was a static, almost lifeless place. You only had text and graphics, with the occasional bit of animation thrown in for good measure. Then, someone came up with the bright idea to add video to the mix. The only problem was that you generally had to download each video you wanted and play it offline. This took longer than the video's running time, and the whole process was an overall disappointment.

Over the past couple of years the face of video on the Web has changed dramatically. You no longer need to wait for video to download before watching it, although you still can if you want to. Today, you can view rich visual thanks to Webcasting, which is widening your online experience.

Webcasting is the act of using the Web as a medium for broadcasting information, whether prerecorded or as an event is happening. This information is as varied as the people producing it and can range from the nightly news to live feeds from a film festival or press conference. Some Web sites have offered live broadcasts of speeches from the 2000 Republican and Democratic party

conventions, and there were regular Webcasts from the 2000 Olympic Games in Sydney, Australia. Offline at press time, iCraveTV.com, a site that broadcasts network television programs over the Internet, is planning to get back into the Webcasting business with new channels and TV programs.

How It Works. Webcasting differs from the traditional click-and-download you're used to. It relies on push technology. Push technology sends, or pushes, content to your Web browser when you click a link. It's sort of like changing channels on a TV. The information is there and is waiting for you to tune into the right station to view it.

What gives a Webcasts its flexibility is the ability to stream information. As the name suggests, streaming sends data so that your computer can deal with it in a stable, continuous flow. Unlike downloading, streaming starts playing a file or Webcast before all of it reaches you. In essence, you get the next best thing to viewing content in real time.

The only drawback of streaming is that your computer must be able to gather the information

and present it to you as it arrives. If it can't, the computer and the software you're using to view the Webcast must be able to buffer the video. Buffering saves the data you haven't viewed in memory until your viewing software catches up with the video stream.

Formats. As you might expect, there is no single file format for Web video. While the situation isn't as bad as it is for graphics (with literally hundreds of types), there are two major video formats used for Webcasts. The first is RealVideo from Real Networks (<http://www.real.com>), which is the de-facto standard for online video. RealVideo is a well-developed format that is designed especially for streaming. It offers superior picture quality over various connection speeds. The other is the Microsoft format, Windows Media Player. This format apes many of the features of RealVideo. We found that it's not a bad format, but that it really can't compete with the quality of RealVideo.

Two older formats, which were around during the early days of the Web, are sometimes used for Webcasts. These formats are Microsoft's video for Windows, AVI (audiovisual interleaving), and Apple QuickTime. Compared to RealVideo and the new Microsoft format, AVI and QuickTime are large and do not stream well. If you add sound to the files, you'll see their sizes balloon dramatically.

Viewing Webcasts. Like many aspects of the Web, viewing Webcasts is easy. You simply have to point and click with your mouse. Once you click the appropriate link, the player for the format being used by the site opens. After a delay of a few seconds, the show starts.

Of course, all of this doesn't work without the proper software. This type of program is called a media player. To play RealVideo, you need the RealPlayer (<http://www.real.com>), which is a freeware application for Windows 95/98, Windows NT and 2000, and Windows Me, as well as for the Macintosh. There's also a version available for \$29.95 that contains a few features lacking in its free counterpart, including powerful full-screen video capabilities. You can view Webcasts in Microsoft's streaming video format using the Windows Media Player, which comes bundled with Windows. Media Player can also open AVI and QuickTime files. Download a QuickTime plug-in for your browser from Apple's QuickTime (<http://www.apple.com/quicktime>, and click the Download tab).

Some sites, such as the CNN.com and NBC's 2000 Olympics site, do away with the need for launching a separate viewer. These sites embed the video in a Web page and play it on the page. The content of the Webcast appears as a graphic would, but with controls for playing, stopping, and rewinding the video.

However, you still need the appropriate viewer installed on your computer.

Your Web browser can also influence whether you can receive a Webcast. We tried initiating Webcasts using Internet Explorer, Netscape, and Opera. The Opera Web browser gave us a little trouble at a couple of sites when the link to the viewer failed with a rather long and ominous error message. Any other errors we encountered were caused by not having the latest version of the media player software installed.

■ Hardware Requirements. Your choice of hardware will affect the overall quality of the video you view off the Web. Webcasts, and video in general, gobble a lot of your system resources. If your computer can't buffer a large amount of the information you're receiving, the video will look choppy. You really need a fast processor, a good video card, and more memory than you thought you'd normally use.

So how much is enough? We've seen the minimum system requirements pegged at the following:

- 120 to 200MHz Pentium processor
- 32MB of memory
- A video card capable of 16-bit color (65,536 colors)

These are recommended minimums and, except for the video card, have little basis in reality. You can use lower-end Pentiums with less memory, but expect video to come in with glacial slowness. We found that the minimum processor speed is 300MHz, and, of course, faster is better. The 466MHz Pentium we tested produced very good results, while a PC with a 533MHz processor gave us the best results of all. You'll also need at least 64MB of memory; preferably 128MB. Again, more is better. A video card capable of displaying



Streaming video from a 56Kbps Webcast doesn't look too bad.

24-bit color (a whopping 16,777,216 colors) is the icing on the cake.

■ Content. Now that you have the software and the hardware, you need something to watch, and the amount of content being Webcast is steadily growing. And so is the variety of what is being transmitted. The content ranges from the

serious to the interesting to the downright fun.

For news, check out CNN (<http://www.cnn.com>), which broadcasts news and features. ABC News (<http://www.abcnews.com>) also has a good Webcasting service. If your local TV station has a Web site, it may also Webcast its news programs. Take a look.

Tech news is very well served by Webcasting. The CERN nuclear physics lab, where the World Wide Web began, has a Webcast series that you can access (<http://webcast.cern.ch/index.html>). These lectures get a bit technical, but you might still find them interesting. You'll need RealPlayer to take in the series, but you can download it from the CERN site. RedHerring, a business and technology magazine, Webcasts many of the events and panel discussions it holds. Go to <http://www.redherring.com>, click Discussions from the menu on the left, and click anything that interests you in the Red Herring Events Video Center.

If you are interested in the lighter side of Web broadcasts, go to Home & Garden Television's Web site (<http://www.hgtv.com>) for tips on a variety of topics. You'll find a series of Webcasts on home improvement targeting do-it-yourselfers and a Rose Parade Cam, with video of the floats that are under construction for the Rose Parade.

Type Webcast into your browser's search field to find other programs that may be of interest to you. There are a number of sites with themes such as sports, science, religion, and popular culture.

You can also add an international flavor to your viewing with ForeignTV.com (<http://foreigntv.com>). Touted as a portal to Internet-only television networks, this site offers news, music, and features from Europe, Asia, and Australia. All you need is the latest Windows Media Player and, in some cases, knowledge of a foreign language.

For decades, *Rolling Stone* magazine has been on the cusp of modern music. As can be expected, it's moved onto the Internet and regularly hosts Webcasts at its site (<http://www.rollingstone.com>; scroll down and click Webcasts). Recent Webcasts have featured acts, such as The Specials, Stereophonics, and Dan Hicks. Unlike many other sites, Rolling Stone offers its Webcasts in both Windows Media Player and Real Video formats.

Sports fans aren't left out in the cold, either. College sports enthusiasts will be able

to watch various University of Nebraska teams face their rivals live at <http://huskerwebcast.com/webcasts/index.html>. On September 24, 2000 the first Formula One race in nine years was held on U.S. soil at the Indianapolis Motor Speedway. The race's site (<http://www.usgindy.com>) chronicles the renovations to the historic track, and has interviews with some of Formula One's top drivers.

■ Improving Your Webcast Experience. Two of the biggest complaints about Webcasts are that they can be choppy and the quality of the images can be very poor. Some of this has to do with the video itself. It might be compressed to decrease the file size and, therefore, decrease the time it takes to transfer. But there are a number of things you can do to ensure you get the best quality possible from the Webcasts that you view.



We watched an MSNBC Webcast using the Microsoft Windows Media Player.



Try viewing one of the many live Webcasts from CNBC.com.

Get the fastest connection to the Internet that you can afford. You might look into cable modem or ISDN lines. Whereas modems for dial-up connections can theoretically transfer data at rates of up to 56Kbps (kilobits per second), cable modem connections can theoretically transfer data at rates of up to 27Mbps

so the video is clear and so it transfers to your computer faster. If you try to increase the size of the viewing area, what you see will become distorted. Using your player software in full-screen mode can render the video unwatchable. So, unless you have a good reason to do otherwise, you should keep the video at its original size.

Another reason for poor reception is Internet traffic. A large number of people could be using the Web and connecting to the same site hosting the Webcast. This can slow the server down tremendously. During our tests, we found that trying to visit another site while watching a Webcast can slow or stop the transmission.

RealPlayer, for example, will attribute this to 'Net Congestion and try to restart the process. More often than not, though, the video stream will hang up and to get it started again you must shut down the player.

■ Helpful Hardware. One piece of hardware

you should seriously consider upgrading is your video card. It's easy to ignore this vital component, but a video card can make or break your Webcast viewing experience. Video is buffered in the card, and, if the video card lacks sufficient onboard memory, you'll run into problems. Most new systems come with a decent video card, but such cards aren't generally optimized for the types of tasks many users have in mind. They're good enough for basic work and Web surfing, but streaming video looks choppy.

If you can afford it, you should look into buying a new video card. Some of the better cards on the market include the All-In-Wonder series

from ATI (<http://www.ati.com>) and the Matrox Millennium series (<http://www.matrox.com>), which feature fast graphics capabilities, as well as high-quality color. The 3dfx Voodoo5 5500 (<http://www.3dfx.com>), the Hercules 3D Prophet II (<http://www.hercules.com>), and S3/Diamond's Viper and Stealth cards (<http://www.diamondvideocards.com>) are particularly nice. While many of the high-powered graphics cards are designed for gaming, they do a more than passable job of rendering Web video. If you're on a budget, check out the Creative's Graphics Blaster and 3D Blaster series (<http://www.creative.com>). With prices as low as \$99.99, you get power for less than the cost of most other cards.

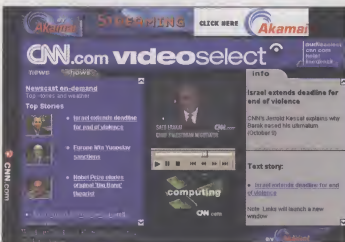
If you can't afford a new video card, consider updating your card's driver software. You can download updated drivers from the manufacturer's Web site. This option isn't as good as getting a new card, but you probably will notice an improvement.

■ **Closing Time.** We also found that applications running in the background, such as an e-mail client or a word processor, can affect the quality and buffering of a Webcast. You should shut down any programs you aren't using when you want to view a Webcast. You'll be surprised at the performance boost.

A final tip is to keep your media player software current. Newer versions of the software have added features and contain fixes for any bugs that were present in the previous edition of the application. The latest version of the RealPlayer is 8.0, while the Windows Media Player is at version 7.0. Both of these media players are well worth the download.

Although Webcasting is still in its early days, you'll still find quite a bit to see, and there's plenty more on the way. When the bandwidth, Internet connection speeds, and processing power increase, you can expect big things. Who knows, maybe one day your computer will replace your television. [E]

by Scott Nesbitt



This CNN.com site shows what a video embedded in a Web page looks like.

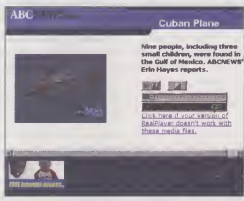
(megabits per second), considerably faster than a phone line. The only drawback is that both cable and ISDN access can be expensive. A dedicated 56Kbps connection is the bare minimum you'll need. We used both an Internet provider supporting 56Kbps connections and AltaVista's dedicated 56Kbps service and were able to watch several Webcasts with very little deterioration of picture quality. The video stream was slow, but not exceptionally so.

We also tried cable modem and T1 (a data connection capable of transmitting a digital signal at 1.544Mbps) connections, and things got a lot better. The video stream was smooth, and the images were as clear as could be expected.

When we tried to watch Webcasts using a 28.8Kbps modem, as several sites said we could, our computer suffered from download rigor mortis. The video took a long time to come through, and our computer wasn't able to do anything other than wait for the video stream.

That said, you also have to remember that your fastest connection to the Web isn't dependent on your service provider, but on the server on the other end. Even if you have a cable modem, a 56Kbps server sending you the video means that you'll receive the stream at 56Kbps.

One aspect of Web video you may overlook is the size of what you're seeing. You view most video from the Web in an area only a few inches square. Most content providers do this



ABCNews.com embeds video in its Web page, too.

PC Video Cameras Go Mainstream

They Provide More Than Just A View Of The World



If you like reality television, you'll love the Internet. There, you can tune in to thousands of sites that chronicle the lives of candid and unreserved individuals from all around the world. Or you can check out the continuously updated snapshots of historic buildings, national monuments, and geographic marvels instead. You might even have the option of viewing your local skyline, not through a window, but through cyberspace.

The hardware that makes this type of virtual sightseeing possible is PC video cameras, often referred to quite simply as PC cameras or Web cameras. These devices, which are used to record still images and motion video, differ from digital cameras and digital video camcorders in several ways. For one thing, they aren't designed to accommodate removable storage media, such as flash memory or diskettes. Nor are PC video cameras designed

to go anywhere but on top of your monitor or desk. Another visible difference between the devices is apparent in the functionality of each. PC cameras tend to be very simple devices, consisting of a simple lens and perhaps a focusing knob. Digital cameras and camcorders, on the other hand, come loaded with all sorts of bells and whistles.

Despite their apparent shortcomings when compared to similar products, PC cameras have become extremely popular in recent years. According to information compiled by InfoTrends Research Group, an expected 7.3 million PC cameras will ship in North America during the year 2000, an increase of more than 250% over sales of the previous year. Market forecasts predict continued growth at a rapid pace, leading to an estimated 38.7 million units shipped in 2003. At that rate, it's likely you'll have a PC camera soon if you don't have one already.

What's New. Cheap, fast, does much: That's the current state of PC cameras in four words. But while these words are often used in an exaggerated sense to describe other areas of the technology industry, in the digital imaging market they are an understatement. The plain and simple truth of the matter is that the PC cameras you find on the market today are significantly less expensive, much faster, and infinitely more practical than their predecessors.

Low prices. The past year not only has seen the price of PC cameras dip below the \$100 mark, but it also has seen those prices approach the sub-\$50 range. That's significant, says Bruce Friedrichs, director of marketing for the video business unit at Logitech.

"Once you crack that \$50 price barrier, you get higher market penetration," Friedrichs says. "It becomes an impulse item." Users who see the cameras at a retail store, for instance, are more likely to toss eye-catching cameras into their carts if those cameras are priced at \$45 rather than \$145. The cheap cameras aren't a result of bare-bones packaging, either. For less than \$50, you get all the hardware and software you need to create, edit, transmit, and broadcast video files from your PC. The only other item you may need to purchase is a microphone.

What has brought the price so low? A major reason for the price slashing is the development of low-cost imaging technologies, such as the CMOS (complementary metal-oxide semiconductor) imaging sensors, says Tim Martin, director of marketing at Xirlink.

"Imaging devices are traditionally CCD (charge-coupled devices)," Martin explains. "But in the last year or so, some of the vendors, including Agilent and Photobit, have been able to make low-cost CMOS sensors. That makes the cameras less expensive because the sensors are a large part of the cost. You give up something—CMOS isn't as good in low-light conditions, for example—but the technology is at the point where it's good enough for PC cameras."

High speeds. When used to describe an electronic device, the word "fast" refers to the device's transmission capacity. A fast PC camera, therefore, is one that can transmit large volumes of data to its audience in a very short period of time. Thanks to modern technology, today's PC cameras are very fast indeed.

One reason for the speed is the proliferation of USB (Universal Serial Bus). The majority of PC cameras sold today sport USB connectors, which let the cameras send data to the PC at a speed of 12Mbps (megabits per

second). That's more than fast enough to support full-motion video transmission of 15fps (frames per second) at a resolution (the definition and clarity of an image as measured by how many dots of lights constitute the image) as high as 640 x 480.

But the camera-to-PC connection is just one part of the speed equation. To broadcast video on the Web in full-motion format, you should have a broadband (high bandwidth) Internet connection, as well. An analog modem plugging along at 56Kbps (kilobits per second) will work, but the resulting video will be jerky and slow. The same is true for an ISDN (Integrated Services Digital Network) connection, which has a maximum transmission speed of 128Kbps. For high-quality, full-motion video broadcast across the Internet, you really should have a DSL (Digital Subscriber Line) or cable modem connection. These connectivity options support transmission speeds of 384Kbps and faster.

"Fortunately, DSL service and cable modem service are starting to roll out to the world," Martin says. "This makes the limited bandwidth problem go away for the most part. And because it's rolling out at such a fast clip right now, you'll soon see a lot more videoconferencing and other camera activity over the Internet."

Do more. Finally, PC camera sales have boomed in the last year because there's just so much you can do with them, says Friedrichs.

"There has been a proliferation of applications that are meaningful to consumers, easy to install, easy to use, and that go beyond videoconferencing," Friedrichs says. "Videoconferencing has long been heralded as the killer app for this category, and a lot of people still buy these cameras thinking that's going to be their primary use. But the fact is that a lot of people who buy the cameras for videoconferencing use them for some other purpose."

And the purposes are many. For instance, professional sales associates can deliver a Webcast (live video footage displayed in real-time on a Web page) to prospective clients in distant locations. Parents can use the devices to set up Web cameras (PC cameras that take still pictures at a steady rate—one picture every minute, for instance—and then transmit the pictures to a Web site for public display) in their homes for the purpose of keeping an eye on the nanny while they're at work. Professors can post prerecorded video lectures on a Web

site where students can view them outside of scheduled class time. Manufacturing companies can create video presentations of their top products and then send these videos as e-mail attachments to potential clients. The list of applications goes on and on.

■ **In The SpotLife.** Of all the uses for PC cameras, perhaps the most intriguing is a Webcast of live streaming video (incoming video data that can be viewed as it's downloaded). There are essentially two ways to set up such a Webcast: the hard way and the easy way.

The hard way involves installing a high-speed Internet connection to your PC, purchasing or renting a Web server, and building a Web site. The easy way, on the other hand, simply requires you to register with a Webcasting service provider, such as SpotLife (<http://www.spotlife.com>) or Inetcam (<http://www.ivista.com>). To show you just how easy the easy way is, we'll take you through the process of using SpotLife's Personal Video Broadcasting (PVB) service to set up your own live video feed online.

SpotLife is a pioneer in personal video broadcasting. While other Webcasting service

Web Cams With A View

It seems like everybody has a Web camera these days. Indeed, odds are high that if you want to get a real-time look at anything worth seeing—and plenty of things that aren't—you can probably catch a glimpse of it on the World Wide Web. We scoured the Internet for some of the most interesting Web camera sites currently available. The following sites are a sample of what we found.

Discovery Cam Universe
<http://www.discovery.com/cams/cams.html>

This site has links to hundreds of Web

cameras in every corner of the universe. The cameras are organized into 10 categories including Animals, Extreme Weather, Science & Tech, Space, Travel, and the Workplace.

The fat worldcam
<http://www.fat.co.uk/world/index.html>

The fat worldcam provides a revolving series of continuously updated live snapshots from locations around the world. One second you're looking at the cityscape of Shanghai, China, and the next second you're viewing the Space Needle in Seattle.

Live NASA Cams & Mission Displays
<http://www.ambitweb.com/nasacams/nasacams.html>

You can stay abreast of the latest space developments by checking in on any of the 12 cameras provided here. Most of the cameras provide still shots that can be updated manually by the viewer.

Trafficcam
<http://www.trafficcam.com>

Avoid rush hour traffic by checking Trafficcam before you leave the office. This site has links to more than 230 live Web cameras, each of which provide an up-to-the-minute picture of current traffic conditions. □



You can access and view content through thousands of Web cameras, including the Pearl Harbor Web Cam (<http://www.dohc.com/aloa/>), as long as you have a browser and an Internet connection.

providers, such as iBEAM Broadcasting (<http://www.ibeam.com>) or Precision Media (<http://www.precisionmedia.com>), target large businesses that want to deliver live video Webcasts to a mass audience of hundreds or thousands of viewers. SpotLife provides individuals and small businesses with a cost-effective way of publishing digital video and images to a small audience via the Web. The service is inexpensive—it's free for most users, including for-profit businesses—and intuitively designed. In fact, SpotLife's PVB service is so easy to use that anyone who knows how to handle a mouse and read instructions can post live streaming video online in a matter of minutes.

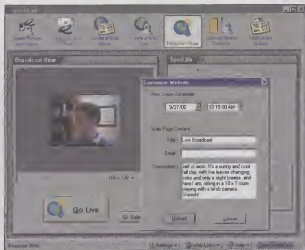
Unfortunately, the only way to access the SpotLife service at this time is to purchase a SpotLife-enabled PC camera. SpotLife currently ships its software with PC cameras produced by Logitech (<http://www.logitech.com>) and Kensington (<http://www.kensington.com>), and the company is in the process of finalizing partnership agreements with several other camera manufacturers. Eventually, says Trinka Dyer, vice president of marketing at SpotLife, visitors to the company's Web site will be able to download SpotLife PVB software that works with any PC camera.

Until that happens, however, you have to obtain the software with a camera. We got our SpotLife software with the Logitech QuickCam Web digital PC camera. We followed the camera's instructions for hooking up the hardware, and then we installed the QuickCam software. When installation was complete, all the tools we needed for producing a Webcast were loaded on our PC. We then opened the QuickCam software and followed the on-screen instructions for registering with SpotLife.

The registration process asked us to indicate how our PC connected to the Internet. The questions were fairly basic—we had to provide our account username and password, for instance—but some users may find it necessary to contact their ISPs to get all the required information. Next, we had to review and accept the terms and conditions of SpotLife. The most interesting aspect of the terms and conditions is a requirement to abide by a code of conduct.

The SpotLife code of conduct essentially mandates that registered users will not use the site to broadcast video or images that are

harmful, threatening, or abusive to anyone; that harass anyone; that are obscene, pornographic, or sexually explicit; that infringe on the patents, trademarks, or copyrights of anyone; and that promote illegal activity. Most users will welcome such a code of conduct, which serves as a way to maintain a friendly and safe environment for broadcasting digital images and video.



Our streaming video, as it appears through the SpotLife Web site, is pictured above. SpotLife allows a maximum of 25 people to log on to any particular Webcast at a time.

Note that the site allows video and images that are intended for a mature audience (video of a birth, for instance), but these materials must be described accurately before they're broadcast.

After accepting the terms and conditions, we became members of SpotLife. All registered members receive 15MB (megabytes) of online storage space for holding video files and images. Members also are allowed to do unlimited Webcamming (running a Web camera) and to broadcast a maximum of 240 minutes of live streaming video per month, with a maximum of 25 viewers per broadcast. Each Web camera or live broadcast receives its own URL (universal resource locator; a Web address), as dictated by SpotLife.

Once we completed the registration, it was time for us to do our Webcast, so we clicked the Broadcast Now button on the QuickCam interface. Almost immediately, the camera lit up and video appeared on-screen. We checked the preview video to make sure the camera was aligned and focused properly. Everything looked good, so we clicked the Setup Show button. This opened a Customize Website dialog box where we entered a small amount of identifying information about the video we were about to record. We also listed a time

when the show should begin. Finally, we clicked the Upload button.

At this point, our Web browser opened on-screen and the SpotLife site appeared. A description of our video and its scheduled airing time appeared on-screen. Because this was our first Webcast, we had to complete a basic user profile with personal information, such as our name, city, and e-mail address. The profile gave us the option of password-protecting our broadcast so only authorized individuals would see it. We also had the option of activating a chat feature to accompany the video. We declined both. Upon completing the profile, our video was ready to go live online.

The last thing we needed to do was contact our colleagues to give them the URL of the page where our video would appear. When the time for the show arrived, we clicked the Go Live button, and the video opened on-screen automatically. Anyone who logged on to the appropriate Web page at that time could have seen the live streaming video we made. Our broadcast was a success.

■ Down The Road. The future looks good for PC cameras. Users can expect to see an increase in camera functionality, including zoom and dual-mode (able to capture motion video as well as still photographs) capabilities. Prices should stay small, while supported video resolutions will get larger. Most importantly, the acceptance of PC camera technology will soar.

"So far, we've seen really good acceptance of this technology, and that's only going to get better," says Friedrichs. "Over time, I think people are going to really understand where they want to go and when they want to use the camera. You'll also see that communities, like SpotLife, will get to the point where they really understand each other."

Consequently, PC cameras will be used for more than mere novelty, income, or videorecording. Users will find practical applications for digital video, and the imaging devices will eventually become as ubiquitous as beige computer cases and 15-inch monitors. Reality will never be the same. **[E]**

by Jeff Dodd

Online Gaming Advances

Thanks To The Internet,
The Best Is Yet To Come



While online multiplayer capability has been a staple of PC gaming for the last few years, the truth is that we've only begun to grow from online gaming infancy to the toddler stage. While current Internet gaming might be light-years ahead of what we had more than five years ago (for those of us old enough to remember), the truth is that we've only started to see the tip of a very big, very exciting iceberg, and—as always within the gaming industry—the best is yet to come.

With PCs boasting far more power and capability and the explosion of Internet access over the past five years, virtually every style of online gaming has benefited and, as a result, evolved. We've moved from text-only MUDs (multi-user dungeons) to the 3-D-powered EverQuest and Asheron's Call. Doom death matches have evolved into Unreal Tournament, the team-oriented Tribes, and Quake III Arena, all boasting better graphics, animation, and new styles of play. So where do we go now?

■ **Internet Voice: Can We Talk?** Internet voice communication is already available

through a number of third-party programs. These programs let you speak via the Internet and are frequently used to make essentially free long-distance calls to friends running the same software. This same technology type should also be finding its way into more and more games, and soon.

Naturally, voice provides more immediate results than trying to convey something through typed messages, be it a warning to a teammate or a taunt to an opponent. Sierra's (<http://www.sierra.com>) upcoming Team Fortress 2 and Tribes 2, which are 3-D shooters both heavily oriented toward team play, promise to integrate Internet voice communications into the games so players can communicate in real-time with other players.

Upcoming RPGs (role-playing games) may also make use of Internet voice features, allowing gamers to converse in real-time just as they would if they were sitting around the gaming table. Additionally, advanced features could allow the GMs (GameMasters) to mute out other players and have private conversations with one player, giving him information that only his character may be privy to; this is another nice advantage that voice will have over standard gameplay.

Players who want this feature now can download a third-party program called Roger Wilco (<http://www.rogerwilco.com>). It lets

gamers use voice communications simultaneously with their Internet connection and works with most popular online games, including Tribes, Unreal Tournament, StarCraft, and Quake III. This process even works reasonably well with 56Kbps (kilobits per second) modems.

■ **Using Roger Wilco.** Before installing Roger Wilco, review its guidelines because you might need to make several adjustments to find the best settings for your particular microphone and sound card setup. Once you've installed and configured Roger Wilco, you'll want to join or create a channel. First, make sure you're already connected to the Internet. To join a channel, click the Join Button. From the next dialog box, click the Browse Our Channel Page. This will open a Web page and place you in the main Game Lobby. (Resize the Web page so you can see it at the same time as your Roger Wilco program.)

In the Roger Wilco program window, you'll see a list of other users on the channel with you, and you might even hear conversation at this point. If you want to create a channel, click the Create Button. An IP (Internet Protocol) address will appear in the Hosting On field. If you want friends to join you, tell them to use this IP address. If you cannot connect in this manner (due to respective firewalls in place, for example), you can try going to a gaming channel and meeting your friends there instead. Additional information for hosting and joining channels is available via the Help button and <http://www.rogerwilco.com/support>.

■ **The PowerPlay Struggle.** Many Internet gamers may have heard about Valve's proposed standard to improve Internet gaming for everyone. Known as PowerPlay, it is the brainchild of Valve Software, Cisco Systems, and a still unnamed ISP (Internet service provider). Valve Software is the creator of the hit game Half-Life, and Cisco Systems makes a variety of Internet connection technologies, including routers and hubs.

PowerPlay is not an existing technology, but an initiative to create an Internet gaming standard. In a nutshell, Valve wants to make modem gaming as fast and enjoyable as LAN (local-area network) gaming, and improve DSL (Digital Subscriber Line) and cable modem gaming even more. Valve hopes to accomplish this by defining a set of standards for PowerPlay-enabled programs, thereby creating a standard which will make Internet and network gaming not only easier to write for programmers, but also faster and more reliable for the gamers.

What exactly these standards will encompass is still in the works, but it will likely involve hardware and software standards that need to be implemented by games as well as ISPs and related companies. For ISPs to become PowerPlay compatible, they will probably have to meet criteria regarding the speed and quality of equipment they maintain, the minimum amount of bandwidth available to clients, and the quality of interconnections between routers, hubs, etc.

On the software side, PowerPlay may take the form of an API (application program interface) offering highly optimized and streamlined networking code. This would allow programmers to spend less time figuring out their own network code and, hopefully, create the best possible Internet gaming experience for gamers, especially for those of us that can't afford high-speed DSL yet.

PowerPlay 2.0 specifications are still currently being ironed out, but for additional information, check out <http://www.powerplayinfo.com> and <http://www.valvesoftware.com>.

■ **Online RPG Renaissance.** Most fans of RPGs probably got their start in the pen-and-paper versions like *Dungeons & Dragons* long before the computerized ones. It's no surprise, then, that we're on the verge of a new generation of computerized RPGs using the Internet to facilitate communication.

Basically, what this new breed of RPGs will do is bring the true-to-life pen-and-paper experience to the PC, replacing the venerable gaming table with the Internet, and all aspects of playing, from dice-rolling to character generation, with computer-driven utilities. Players will join servers hosted by a GM, who will direct the adventure with easy-to-use mapping utilities, as well as other programs, to create an entire adventure, from the non-player characters to the monsters. There's a good chance many of these tools will allow GMs to make their own graphics and import them into the game.

For those interested in this new breed of game, one available now is Activision's *Vampire: The Masquerade* (<http://www.activision.com>), which is based on White Wolf's pen-and-paper game of the same name. Another title,

eagerly awaited by *Dungeons & Dragons* fans everywhere, is BioWare's *Neverwinter Nights* (<http://www.neverwinternights.com>). *Neverwinter Nights* is based on the recently released 3rd Edition *Dungeons & Dragons* rules and will have a single player game as well as all



Neverwinter Nights, which is based on the *Dungeons & Dragons* model, represents the next generation in RPGs (role-playing games).

the multiplayer trimmings. It might even offer Internet voice support. *Neverwinter Nights* should be available in early 2001, and its specifications might change before then.

■ **Cross-Platform Gaming.** Let's step aside from the PC arena momentarily and briefly discuss consoles. Sega's Dreamcast is Internet-capable right out of the box, sporting an internal 56Kbps modem. Sony's PlayStation 2 will reportedly have an add-in card available to provide modem/Ethernet support, and Microsoft's upcoming Xbox will have some form of Internet connectivity, as well. These consoles all boast near PC-level power at more friendly console prices.

Want to take your gaming with you? Nintendo's upcoming Game Boy Advance, the newest generation, will also be Internet-capable. Combined with a wireless Internet connection available in some of the fancier luxury cars out there, children traveling in vehicles on family vacations might potentially be able to chat or play games with one another, should they be fortunate enough to be in Internet-capable cars, anyway. Parents may never have to hear the inevitable "are we there yet?" again.

Generally speaking, all console systems will begin sporting more Internet capabilities, as well

as hosting other cross functions. Sony's PlayStation 2 is a prime example of this. It will play games (PlayStation and PlayStation 2) and DVD movies. Additionally, with optional components such as an add-in Ethernet card (for high-speed broadband access) and an external

hard drive unit, Sony plans to make "data-intensive computer entertainment content" available, which in all likelihood means that games will be downloaded via the Internet straight to your PlayStation 2.

Of course, this raises a big question in the gaming world: Will these super-consoles replace PCs as the gaming and Internet surfing platform of choice? According to information released in September by IDC, the answer is: probably not. Only about 30% of 3,500 polled households expressed interest in using game consoles as Web-surfing devices.

How does this affect you?

Cross-platform multiplayer gaming! Game developers are already working on making their cross-platform games playable online in a single, unified forum. This means someone playing *Half-Life* on their Dreamcast console could potentially play online with someone playing *Half-Life* on his PC. With the line between consoles and PCs getting thinner, we might be seeing a lot more of this capability in upcoming titles for both PC and console platforms.

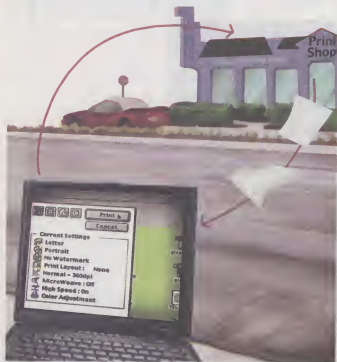
■ **Ready, Set . . . Wait.** Unfortunately, the potential for new Internet technologies and what they'll become is so vast that it's hard to cover everything in two pages. All of these new technologies are exciting, but keep in mind we are only on the edge of seeing the first generation of products to use them.

In years to come, Internet voice may become the norm for multiplayer gaming, and the world of PC gaming and console gaming might merge online into a larger, more closely united gaming community. Perhaps, as broadband access and PC capabilities expand, Internet voice might even give way to some form of embedded video conferencing features in games. For now, we'll just have to wait and enjoy the ride. [E]

by P. Bryum Edge-Salois

Internet Printing

It's Finally Becoming Possible



Internet printing comes in several different shapes and sizes, but all the various technologies share one common goal: They enable users to print documents without establishing a direct connection to a printer. Needless to say, the concept of remote printing is relatively new, so the associated processes and technologies are still developing. If you gave up on the idea a year ago, you should revisit your options because they've probably changed.

■ **Protocols & Standards.** IPP (Internet Printing Protocol) is an emerging protocol that runs on top of HTTP (Hypertext Transfer Protocol). It enables remote-control printing via the Internet to any IPP-compatible device. The Printer Working Group officially launched the IPP Project in 1996 with representatives from several participating companies. In 1999, the Internet Engineering Task Force (IETF) published the first experimental version of IPP/1.0, but this year's release of IPP/1.1 makes IPP into a formal IETF standard.

In order for IPP to work, you must install an IPP client on your computer (or the computer from which you plan to send the print jobs). Windows 95 and Windows 98 do not include an IPP client, but users can download it at no

charge from Microsoft's Web site (<http://www.microsoft.com/windows95/downloads/forWin95> and <http://www.windowsupdate.microsoft.com> for Win98). If you are considering upgrading your operating system, you should know that the newly released Windows Millennium Edition (WinMe) is designed especially for home users and includes an IPP client. Windows 2000 includes it, as well.

Besides needing an IPP client, Windows users must also find and

install a print driver for any new printer to which they wish to send jobs. Future enhancements to the IPP standard will automate the process so that driver downloading occurs through the IPP and requires little or no involvement from the user.

On the printer side, your target must also be IPP-enabled. Xerox, Lexmark, Canon, Epson, IBM, Ricoh, and Minolta all sell IPP-compatible printers these days. View a detailed list of these printers on the Printer Working Group Web site (<http://www.pwg.org/ipp/IPP-Products.html>).

With IPP installed on your computer, you can connect and print to any IPP-enabled printer as long as you know that printer's IP address (written as four groups of up to three digits, such as 192.149.109.58) or its URL (universal resource locator, a Web address). The URL of an IPP-compatible device typically begins with `ipp://` instead of `http://`. In the future, you might find your printer's URL listed on your business card along with or instead of your fax number.

IPP allows interaction with the remote printer just as if it was directly connected to your computer. Find out the printer's capabilities, such as color or two-sided printing. Set your

preferences, send the job, and then return to check the job's status or cancel it if necessary.

As exciting as these current capabilities are, you should know that IPP is getting even better. The following are a few of the enhancements you can expect in the very near future.

Firewall roadblocks. One of the greatest hindrances to widespread use of IPP is the firewall. Firewall software normally provides much needed security by limiting certain kinds of computer access from a network or another outside source. However, the innocent user trying to access a network printer through IPP may find the firewall more harmful than helpful. Thus, many firewall vendors are now working to create software that helps network administrators make their IPP-enabled printers more accessible to the outside world.

Small businesses with small networks actually have an advantage here. They can easily set up their networks to allow traffic to a particular printer at an IP address belonging only to that printer.

IPP additions. You can already monitor your remote IPP print job by polling the printer for the status, much like you poll your mail server for new e-mail messages. This polling tells you whether the job is still queuing, currently printing, stalled because of problems, or completed. While people appreciate the ability to verify the status of their jobs, many users still deem the constant checking burdensome.

Event Notification, another up-and-coming addition to IPP, greatly simplifies the process of print job follow-up. Rather than the client polling the printer for information, the printer automatically sends the client notifications when jobs finish or problems occur.

In addition, the new document, Job and Printer Administrative Operations, is currently awaiting approval and will primarily benefit network administrators. It will let them quickly and easily configure IPP printers via the network, from the convenience of their own computer.

Linux. Users who opt for Linux over Windows may now enjoy the benefits of IPP for remote printing. Two different organizations recently developed, and now provide, the necessary source code, which is free to download. You can download CUPS 1.1.3 from Easy Software at <http://www.cups.org>, or download the LPRng software from ASstArt at <http://www.asstart.com/LPRng/LPRng.html>.

Not just computers. If you think that desktop or notebook computers are the only means of sending print jobs to IPP-compatible

devices, think again. Before you know it, handheld devices, such as a Windows CE model and Palm Pilot, will be able to do the same thing. Even wireless devices, such as your portable phone, will eventually join the ranks as suitable IPP clients. Basically, if it connects to the Internet, it will soon be able to print with IPP.

■ **PrinterOn.**

PrinterOn calls itself "The Internet Printing Company" (<http://www.printeron.net>). It bases its services on IPP, but it actually manages to bridge a few of IPP's remaining gaps in usability. PrinterOn's solutions include a



PrinterOn is an up-and-coming Web site dedicated to Internet printing via IPP (Internet Printing Protocol) and its own special PrintWhere software.

single printer driver for all Internet printing, a convenient Global Directory of printers and their IP addresses, the ability to enforce correct use of your printer, and a higher level of security for exposed printers.

PrinterOn users download and install the PrintWhere software, which enables them to send and receive jobs through IPP and communicate with the remote printer about preferences and settings. They then use PrinterOn's Global Printer Directory to look up the IP addresses of IPP-compatible printers. Users can even create listings for their own printers within the directory so that others can find and print to them.

With PrintWhere installed, you can send a print job by choosing File and Print from any application. Next, select Internet Printing from the printer list, and click the Properties button. Then, enter a printer address, or find one from the Global Printer Directory. Use the Printer tab to check that printer's settings, and choose other printer options by selecting Properties. Click OK to confirm your selections and send the job.

While PrinterOn membership isn't required, the membership does have its privileges. Signing up affords you access to exclusive printers in the Directory. It also gives you the ability to generate e-mail notices and receipts, warning recipients that they have a new document and informing you that your job completed successfully.

Other software options include PrintWhere Envoy, which lets you print from Internet-enabled wireless devices, such as cellular

phones or pagers. PrintWhere Focus has two basic functions: adapt your legacy printers so that they understand IPP, and connect your printers to the Internet while preserving fire-wall integrity.

Unfortunately, when we wrote this article, most of PrinterOn's features were not yet fully functional. PrintWhere is not yet available for

download, membership isn't an option, and you can't add or find printers in the Global Printer Directory. PrinterOn attempts to remedy the temporary inconvenience by posting an e-mail address where you can send requests if you simply cannot wait any longer to

begin using this printing service. Clearly though, you'll want to keep an eye on this developing site.

■ **Nadio InternetPrint.** Although this service is not quite as new on the market, Nadio InternetPrint represents another remote printing solution worth consideration. If you're not sold on IPP or don't have time to wait for sites like PrinterOn to officially open for business, visit <http://www.nadio.com>.

This already up-and-running remedy comes not as a protocol, but as software: Nadio InternetPrint Lite 2.0. The only awkward part is that both you and your recipients must have the software installed. After that, it's just a matter of selecting and naming your printers and choosing passwords.

To send a print job, click an icon to connect to Nadio's server. Use your application's Print command, and select the Nadio print driver. Nadio requests your user ID and the name of the destination printer before checking to see if the

recipient's system is currently connected to the Nadio server. If it is, the print job transmits immediately. If not, Nadio conveniently stores the job on their server, where the recipient can retrieve it later. Alternately, Nadio creates an EXE (executable) file as an e-mail attachment which, when opened by the recipient, automatically begins the print job.

■ **Driverless Printing.** NEC Technologies took printing by storm when it released its SuperScript 4650 Internet Printer series (<http://www.nectech.com>). After all, these are the first printers that let users send jobs without first installing the appropriate print driver on their system.

Driverless printing, also referred to as pull printing, enables users to send print jobs from any computer that can make a network or Internet connection to the printer. No drivers are required. Simply open your Web browser, enter the printer's URL, and choose Pull Printing from the printer's Web page. This selection redirects you to the recipient's pull print server and lets you enter the file you want sent to the print server for processing and printing.

The other option is to download the printer driver from the printer's hard drive, install it on your system, and then print directly to the printer. This type of printing is called push printing because it enables you to "push" files directly to the printer's IP address via the Internet.

The 4650 model offers relative affordability, suiting the needs of small businesses. Larger companies or workgroups should consider the 4650N, which is ideal for network environments, while the 4650NX caters to network users who print high volumes. All models print at speeds of 4ppm (pages per minute) in color and 16ppm in black and white.

Obviously, not everyone is equipped and able to take advantage of Internet printing at this point. However, its developments are still worth noting because Internet printing is undoubtedly the way of the future. **ES**



NEC's SuperScript 4650 series of Internet printers enable users to print to them even if they don't have the appropriate drivers.

by Hannah Henry

Portable Network Graphics

PNG Gains Support For Web Use



One of the formats finally gaining momentum for image creation software and online use is PNG (Portable Network Graphics). Its development hasn't been an overnight sensation, however. PNG (pronounced "Ping") had its beginnings back in 1977 and 1978 when two Israeli researchers, Jacob Ziv and Abraham Lempel, wrote two papers on a new class of lossless data-compression algorithms, referred to as "LZ77" and "LZ78." In 1983, Sperry's Terry Welch created a variation of LZ78 called LZW and applied for a patent, along with Victor Miller and Mark Wegman of IBM (Sperry later merged with Burroughs to form Unisys).

In the meantime, Bob Berry of CompuServe designed a new compressed image format that later became GIF (Graphics Interchange Format). Berry chose LZW for compression, unaware that Unisys had applied for a patent. It was only after GIF had been widely accepted

that they discovered there was a patent in effect.

By 1994, Unisys began aggressively pursuing commercial vendors of software-only LZW implementations. In the wake of that, CompuServe made an announcement in late December of 1994 that it would begin collecting royalties from authors of software using the GIF format. The result was considerable wrath toward CompuServe, and later toward Unisys, as the details emerged. During this upset, a group led by Thomas Boutell decided to create a replacement for GIF that

would be better, smaller, and free.

So, by January of 1995, the first draft of PNG, then known as PBF (Portable Bitmap Format) was posted on the Internet. By February that year, seven drafts had been produced, and with it, the PNG name was adopted. By March, draft nine of PNG had been released and the specification was frozen, although further drafts followed to add clarifications, information for encoders and decoders, and tutorials. So far, the major uses of PNG are for image editing and the Web.

The advantages of using PNG are many. Among them, PNG offers up to 48-bit true color and 16-bit grayscale. JPEG (Joint Photographic Experts Group) is referred to as lossy because it loses data each time you save or resave the file, whereas PNG is lossless, meaning that no matter how many times you save the file, you will not lose data. This is important for maintaining high-quality

images. For Web browsers, the PNG interlacing will resolve into a complete image twice as fast as GIF, and file sizes can be up to 10% to 30% smaller.

Gamma correction is a valuable setting with PNG. Gamma is a setting used by many image manipulation programs to measure brightness and contrast levels. Unfortunately, what looks right on one computer may look too light or dark on another. PNG automatically adjusts the Gamma setting regardless of the platform.

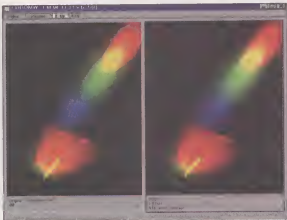
An advanced feature of PNG is alpha transparency. Alpha refers to variable transparency and is a channel separate from RGB (red-green-blue), allowing you to create effects such as anti-aliased text, drop shadows, glows, gradient fades, etc. PNG supports an 8-bit alpha channel in grayscale and RGB. With GIF, there is only one level of alpha, which can sometimes lead to "halos" around the image that can be difficult to correct. PNG offers several levels so you can get a really tight mask that looks good. Finally, PNG is free of patents, unlike GIF.

Of the disadvantages, there is limited support for Web browsers. HTML (Hypertext Markup Language) 4.0 will display a PNG image with browsers that support PNG, otherwise a GIF or JPEG file will display in other browser windows. In addition, some browsers such as Netscape Navigator require a plug-in. Microsoft Internet Explorer offers PNG support, but not the advanced features. Other disadvantages are that PNG files are almost always larger than a JPEG image and there is no animation support (unlike GIF).

■ **Why Is PNG Slow To Catch On?** This is a complex issue. One of the problems stems from unequal browser support, resulting in a reluctance by developers to implement the format. Another difficulty is in the way users compress their images. As an example, a user might take a 24-bit TIFF image (Tagged Image File Format) and save the file as a PNG and as a GIF. Which one will be smaller? The GIF image. Why?

GIF offers color-mapped images only, while PNG supports both color-mapped and true-color images (up to 48 bits). So, when you save a true-color image as a GIF, a lot of color information is thrown away to create an 8-bit image. PNG almost always saves images in 24-bit color, which results in a larger file size.

JPEG is still a better choice than PNG despite problems with artifacts (where pixels begin to clump together in the image due to compression). PNG files tend to be five to



In this test, we used PNG with the 24-bit setting. The resulting file was huge, at nearly 1.57MB in size, compared with 121KB for the JPEG image. This is a good PNG result for image editing applications and photographic work, but not for the Web.

10 times larger than a standard JPEG file. At this point, PNG is comparable to the new JPEG-LS (lossless JPEG) standard. However, for buttons and simple graphics with few colors, PNG is usually smaller than JPEG (and sometimes smaller than a GIF, as well). The trick is to use the right combination of techniques for reducing file sizes.

Be aware that not all applications do a good job of compressing PNG images. Sometimes the resulting file can be more than twice the size or more. An example of a program that does a good job is Adobe ImageReady (included with Photoshop; <http://www.adobe.com/products/photoshop>).

At last count, there are more than 500 applications that now support PNG, including Macromedia Fireworks, Corel Draw, Deneba Canvas, and Microsoft FrontPage. For an up-to-date listing of supported applications, see Applications With PNG Support at

<http://www.freesoftware.com/pub/png/pngapps.html>. Hardware information is also available at this site.

Check PNG options with your software. To get a true representation of file sizes, make sure text annotations are applied equally to PNG and GIF images. Recompressing JPEG images with PNG is not a good idea as artifacts can cause compression problems. Finally, don't add alpha channels to opaque images. You will make your files larger than necessary.

■ We Put PNG To The Test.

To see how well the PNG compression worked, we conducted several tests using ImageReady. The first test was with a 4MB image of a photographic rainbow. We chose this test because compression tends to break down soft gradations of color. Initially, the file was compressed using a high-quality JPEG setting as well as quality levels of 60, 30, and 15. The compression sizes were approximately 97.6KB, 25.6KB, and 18.8KB, respectively. Even at the lowest setting, the quality was still fairly good, with not too many artifacts.

The next test used PNG with the 24-bit setting. The resulting file was huge, at nearly 1.57MB in size, compared with 121KB for the JPEG image, a great result for image editing applications and photographic work, but not for the Web.

Next, we ran another test with a setting of PNG-8 with 100% dithering, reducing the file to 551KB. There was a noticeable amount of grain beginning to appear, as well as banding in the colors. Turning off dithering made the

problem worse. Testing the GIF compression utility on the same image gave an unusable result.

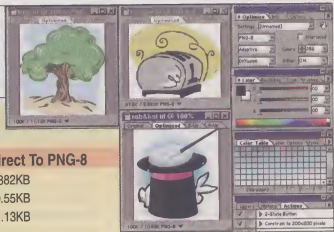
We used a cropped section of a map with similar colors for the next series. Initially, it was compressed using JPEG, then PNG. The original file size was 700KB. The JPEG compression results were 39KB, 18KB, and 12KB, respectively. The PNG-8 files gave compression results of approximately 145KB, 123KB, and 103KB. This time the PNG image looked much better than in the previous test, but the file sizes were nearly four times larger at the minimum compression setting and nearly nine times larger at the high compression setting. In the last series, we used a few clip-art vector images for a standardized test. We originally saved each as a TIFF, then as an optimized GIF, and then as a PNG-8 file. We also saved each file to PNG-8 directly. The results are in the table below. As you can see, the PNG compression was very similar to GIF.

From these results, it is clear that JPEG compression still offers a clear advantage over PNG for full-color images for the Web. In the case of vector graphics, PNG is very close in file size and quality to GIF. For image editing and photographic work, the PNG format appears to work quite well and the results are excellent for compression, which could free up a lot of hard drive space.

While browser support for PNG is improving, it is uncertain whether it will become a mainstream format. One difficulty is that implementing new standards has been a slow process, so no one knows when their efforts will pay off. Despite the slow Web development, PNG is fast becoming an accepted graphics standard. And that, at least, is a step in the right direction. [E]

by Nathan Segal

We used Adobe ImageReady and a few clip-art images to see how well PNG compression worked. We originally saved each image as a TIFF, then as an optimized GIF, and then as a PNG-8 file. We also saved each file to PNG-8 directly. As you can see from the table on this page, the PNG compression performed just as well as GIF. But unlike GIF and its patent, PNG is free.



Compression Results

Images	TIF	GIF	PNG-8	Direct To PNG-8
Toaster	87.5KB	6.56KB	5.97KB	5.882KB
Rabbit & Hat	100KB	11KB	10.7KB	10.55KB
Tree	100KB	10.7KB	11.15KB	11.13KB

Add Depth To Your Online World

3-D Differentiates Web Services

3-D is finally coming of age on the Web. Advances in browsers, faster Internet connections, and the smarter implementation of 3-D plug-in technology have all contributed to this achievement. But perhaps the most compelling reasons for online retailers to go 3-D is that it allows visitors to get a better look at their products, keeps them engaged, and results in higher sales. Even car companies are providing 3-D tours of their cars online. In addition, hotels are using 3-D to provide tours of their rooms and facilities, and real estate companies are using it to provide online tours of homes.

VRML (Virtual Reality Modeling Language) was the first attempt to bring 3-D to the Web, but it never really took off. This was mostly because files were large, Web implementation was slow, and there was no driving business need. Chris Johnston, director of marketing for Viewpoint (formerly Metastream; <http://www.viewpoint.com>), the developers of Viewpoint 3D Photo Studio (and a 3-D modeling agency service whose clients include Sony, Eddie Bauer, and Nike) says today's implementation is smaller, faster, and more integrated into the site.

Imagine going to your favorite e-commerce Web site to buy clothing. There, you see the same two-dimensional photograph you saw in the catalog. The outfit is on a model who looks nothing like you and doesn't come close to your body type. You buy the clothes in spite of this, but when they arrive and you try them on, you realize they are not right for you and

return them. You are not alone. This is a common experience for many online shoppers.

Now imagine that you can go to the site and build a model based on your body size, shape, hair color and style, and skin color. You can try on different clothes as you click your selections and view the model from the front, side, and back, as well as see what different colors look like. Obviously, you can make a more intelligent shopping decision this way because you can see the clothes in three dimensions. Well, such a shopping experience exists today at Lands' End site (<http://www.landsend.com>) by clicking the Your Personal Model feature on the Lands' End home page.

Beverly Holmes of Lands' End says this feature was developed for the site by Public Technologies Multimedia (soon to be known as My Virtual Model), and that 1.5 million users have created models since it launched the service back in 1998. While Holmes can't relate exact sales figures to the 3-D shopping experience, she says that Internet business

accounted for \$138 million in sales last year, more than double the \$61 million in total Internet sales from the year before. In addition, Holmes reports that Lands' End has a slightly lower rate of returned merchandise on their Web purchases than from the catalog.

3-D In Action. Viewpoint's Johnston, who has almost 10 years of experience working with 3-D software, says that online retailers are looking for a way to establish a presence online that differentiates them from the competition. Johnston says that Nike, for example, has strong brand recognition in the physical world, but a 3-D presentation such as the one at <http://www.nike.com/running> provides a way for them to take advantage of the Web as a medium and present themselves in a unique way.

Johnston also says that many online retailers are just beginning to understand that the Web is a different place. He explains that while retailers know how to present merchandise in a store and in a catalog, many simply transfer that same image to the Web site. As Johnston sees it, this fails to take full advantage of the fact that you are in an online medium. He says the online retailer has to focus the experience on users by letting them interact with products.

In addition, Johnston says 3-D offers consumers and retailers two major advantages. It provides a way for you to see the product before you buy it, and it offers an avenue for retailers to provide post-sales support. Imagine going to your PDA vendor's Web site for 3-D instructions on how to change the batteries. In this context, a 3-D presentation offers a much more compelling presentation for consumers than reading a manual or walking through the process on the phone with a customer service representative.

Matthew McDermid, vice president of marketing at Cystore (<http://www.cystore.com>), makers of the Cult3D program, says an interactive 3-D demonstration provides a way for users to interact with a product, which gives them a much better viewpoint, making it more likely that they will get what they want when they receive the product in the mail. This, of course, benefits consumers, too.

Cystore's customers include Palm, makers of the PalmPilot; ATI, the makers of graphics and video cards; and car manufacturer Daimler-Chrysler. ATI reported that online



sales of the Rage Fury MAXX boards increased a whopping 13% after adding a Cult3D model to its Web site (http://www.ati.com/na/pages/products/pc/fury_maxx/index.html). In addition, 75% of those who viewed this Web page chose to download the Cult3D plug-in (the small program that lets you view Cult3D models).

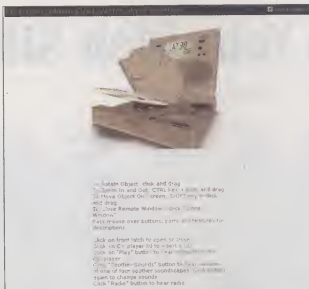
■ How it Works. Viewpoint creates models by taking a series of pictures and stitching these pictures together into a model (although they can use models from other 3-D programs or scanned images). Cycore uses models created in 3D drawing programs such as 3D Studio Max from Discrete, and then uses its Cult3D software to add interactivity and other effects. Both products support other media such as sound files.

It's important to understand that both of these products allow you to interact with the model, rather than watching an animation or movie. You can turn it, zoom in and out, and manipulate the object in various ways. Some more sophisticated models include other interactions such as clicking the buttons on the Palm Pilot or opening a CD player in a CD Radio/Alarm Clock.

Both Cycore and Viewpoint embed the 3-D object into the Web page in the same fashion as a 2-D picture. When you click the 3-D object, a window opens. Both programs require a small plug-in to display the 3-D media. If you don't have the plug-in on your machine, it downloads automatically. Those who have a broadband connection will barely notice this, and even a 28.8Kbps (kilobits per second) modem won't take more than four or five minutes to download Viewpoint's plug-in. Once the plug is in place, you won't have to download it again.

Viewpoint actually uses a special technology that updates the plug-in incrementally in units as small as 100KB (kilobytes) automatically, so that each time you click a Viewpoint 3-D object, the plug-in could be updated, but you probably won't even notice.

You can visit The Sharper Image site to see an example of a Viewpoint model at <http://www.sharperimage.com/us/en>. From this page, click the Office & Travel link under one of the photos, and then



You can manipulate this Viewpoint 3-D model at The Sharper Image by clicking and dragging with your mouse.

click the CD Radio/Alarm Clock With Sound Soother link on the next page.

Click the link that says 3D View Of The Product to the left of the picture. It takes a bit of practice to learn how to manipulate your mouse to move the model and zoom in and out, but once you use the commands a few times, it becomes much easier. Begin by clicking the front of the unit. When you do this, a label that reads Open appears. Click the label and the unit opens showing the inside.

To interact with the model, place your pointer on the alarm clock and drag the mouse back and forth. As you do this, notice how it moves so you can see all sides. To zoom in or out of the item, press CTRL on your keyboard while dragging. Move the mouse vertically and notice how the unit zooms in and out. Finally, let your pointer

rest on the CD player, then click it when you see the Insert CD label appear. A CD flies into the player and the player closes. Click the Close window command when you are finished.

■ The 3-D Panorama View. Another type of 3-D is the 360-degree panorama offered by companies such as Internet Pictures, better known as iPIX (<http://www.ipix.com>). Steve Hicks, executive vice president at iPIX, says the company creates these 3-D tours by taking two 180-degree photos with a fish eye lens and stitching them together.

Applications for this software package include real estate tours of houses, tours of hotels, and other features such as showing celebrities at an awards ceremony or the opening ceremonies from the Olympics. To try a tour, visit the iPIX site, and click the iPIX Gallery link. Next, click any link to sample an iPIX view.

For example, if you click the See More Homes For Sale link at the end of the top row on the right (or just click the picture), the Homes For Sale page opens. Click the Sample Homes drop-down list and select one to view. A picture of the house appears to the left of the list; click it to begin the tour. The tour loads automatically and you can watch it pan around the scene, or you can click the control buttons at the bottom to move left, right, up, or down. You can click the small magnifying glass icons to zoom in and out, too.

■ Why It's Effective. 3-D tours enrich your online experience by providing you with a more complete view of products (and in the case of iPIX, that view might include a house or part of the world). You can get a better sense of what you are buying or seeing, and that makes it more likely that you'll enjoy your online experience. 3-D is just beginning to take hold online, but as broadband connections become more prevalent, and shoppers become more sophisticated, you'll start seeing even more of it. **[E]**

by Ron Miller



During an iPIX tour of a house, you can get a full view of rooms or change your view by clicking the icons at the bottom of the iPIX window.

Spice Up Your Web Site

Flashy Web Design Technologies



The Web has always had a hip reputation, but not all Web sites live up to this standard. However, thanks to a more widespread use of technologies such as Flash, streaming multimedia, and animation, even staid companies and average citizens are adding spice and pizzazz to personal and corporate Web sites. Instead of text and still photographs, sites now have eye-catching animations, short videos, and movie trailer-like graphics.

Some of the technologies used to create these showy sites have been around for several years, but they really started to take hold in the past year. For the most part, these technologies weren't being widely used until now because end users weren't able to take full advantage of the technologies. However, now that more users have speedy broadband access, such as cable modems, DSL (Digital Subscriber Lines), and ISDN (Integrated Services Digital Network), or at least a standard 56Kbps (kilobits per second) modem, they have a much better experience when viewing these cool sites than they did with slower connections. In addition, software companies have done a better job of marketing these technologies to the end users. A user no longer has to download and install a new plug-in each time she encounters one of these cool tools online. Now, Web browsers come with a number of these third-party programs, and the user may not even realize she is using a plug-in.

Another factor in the increased use of these cool tools is that Web site designers have a better understanding of what they can do with these technologies. Rather than creating sound files for the sake of sound (we've all been to Web sites where an annoying 30-second clip plays again and again), designers are using sound to add valuable content, such as a message from the CEO or a grandchild singing "Happy Birthday."

So, without further ado, let's look at some of the cool technologies making their presence known on the Web.

■ **Flash.** Ask any Web site designer what single technology has changed the face of the Web recently, and odds are good she will name a program from Macromedia called Flash. "Flash technology has had the single biggest impact in the past year and a half to two years," says Rob Carroll, the president of Access Technology, which develops interactive media. "It has really given designers the ability to put life into the Web."

The best way to describe Flash is to point you to a site that uses it because you almost have to see it to understand it. However, we will first take a shot at explaining it in words. Have you ever been to a site that has content, such as words, pictures, and colorful icons, that appears to glide onto the page and then fade out, almost like the opening credits of a

movie? Typically, a site's initial page will load using Flash (and the user often has the option of clicking a Skip Intro button to jump past the Flash page). No matter if the content is splashy or elegant, it is always eye-catching.

To see a noteworthy site using Flash, go to First 9 Months from ParentsPlace.com, (<http://www.pregnancycalendar.com/first9-months>). This site presents a multimedia journey through pregnancy. From the

initial cute drawing to the final photograph of mother and baby, Flash technology details the progression of one family's newest member. Another site to check out is the Nike Web site (<http://www.nike.com>). A banner in the middle of the page uses Flash.

Part of the reason Flash has recently taken off has to do with its underlying technology. Very simply put, there are two main ways of depicting graphics. One method relies on bit maps, a type of graphics file in which one or more bits are used to describe the color of each tiny square that makes up the image. In this case, a number is associated with every dot, and each graphic has a complete set of numbers that a program must read to display the entire file. Another method, the one upon which Flash is based, is vector-based graphics. Rather than sending the number for each dot, this method sends a mathematical formula for drawing the graphic. This takes up fewer resources (and less bandwidth) so it does not slow the end user's machine as much as bit-mapped images.

In addition to the increased download speed of these graphics, many professionals designing Web sites for companies use Flash because it helps protect the company brand. Until Flash came along, the primary method for putting logos, photographs, and other copyrighted corporate material online was to place it as a JPEG (Joint Photographic Experts

High-speed broadband access is one reason why more sites are experimenting with streaming media, because it typically takes up a lot of bandwidth.

Group), GIF (Graphics Interchange Format), or other graphics file format. In this format, a visitor to the site could right-click the graphic and save the image to his hard drive and then redistribute the file. With Flash, however, it is much more difficult to download the content, and corporations are better able to control the redistribution of their copyrighted material.

Eric Wittman, director of product management for Macromedia, also notes a few other reasons why Flash is gaining in popularity. He says the Flash file format was made available as an open standard in April 1998. When that happened, developers worldwide began collaborating on improving and using the technology. In addition, Flash now has more features, such as MP3 audio and HTML (Hypertext Markup Language) form support, than it did when FutureWare (which Macromedia later acquired) came out with Flash in 1997. And, as with any software, an increase in useful features tends to contribute to growing popularity. Finally, Wittman says the increase in popularity is also occurring because those who study Flash in design schools are hitting the work force and putting their knowledge into practice.

You don't need to go to design school to learn how to use Flash, however; with an understanding of basic Web design, you can teach yourself how to create Flash-enabled sites. Start by visiting the Flash page at the Macromedia Web site (<http://www.macromedia.com/software/flash>). Here, you can take a tour of the latest features, view a list of frequently asked questions, see the latest statistics on Flash users, and more. Then, you can try the software by downloading a demo version from the Web site. If you decide to keep the product after the 30-day trial period, the full version of the application costs \$399, and you take part in an introductory online training course for

Macromedia Flash 5. (You also can order the product by calling 800/470-7211.)

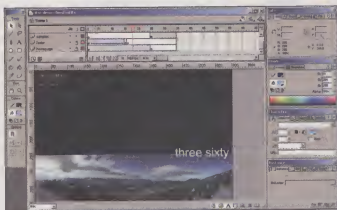
■ **Director Shockwave.** Macromedia is also well known for another of its end user tech-

Like Flash, Shockwave has also been around for some time, and its recent surge in popularity has much to do with the end user's system hardware. According to Miriam Geller, senior product manager for Shockwave Player, today's average system has a 333MHz Intel Pentium II processor with 32MB of RAM (random-access memory). This system can handle Shockwave applications better than the average machine of even a year or so ago. Designers tend to be willing to spend time on applications when they know their audience can see them, and more and more individuals are able to see Shockwave content now that they have a powerful enough system.

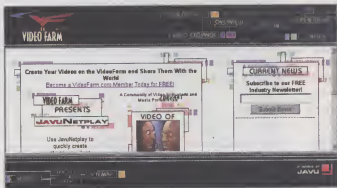
If you want more information about the Shockwave viewer or the Director application, visit Macromedia's Web site at <http://www.macromedia.com/software/director>. Along with a list of new features, a feature tour, and a showcase of Shockwave sites, you can view resources such as white papers and support links. In addition, you can download a free, limited version of Director. You can purchase the Director & Shockwave Studio for \$999.

■ Streaming Audio & Video.

Streaming audio and streaming video are next on the list of cool technologies. Like our previously mentioned technologies, streaming media isn't really new to the Internet; it has been on the Web for many years. However, the number of Web sites using this technology is rapidly increasing. High-speed broadband access is one reason why more sites are experimenting with streaming media, because it typically takes up a lot of bandwidth. Rather than seeing the jerky movements one might see using a 28.8Kbps modem or even 56Kbps modem, users with high-speed connections are able to see clear video and listen to smooth audio. In addition, streaming



Ask any Web site designer what single technology has changed the face of the Web recently, and he will probably mention Flash. Here you can see the software that was used to create a Flash page.



You can easily create your own streaming video files with the help of a Web site such as Video Farm.

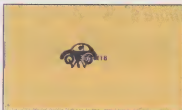
nologies: Shockwave. Shockwave is the viewer program for rich-media content and animation created via Macromedia's Director software. Not as popular as Flash (at the time of this writing, more than 147 million users worked with Shockwave players, but more than 281 million used Flash through Flash-enabled browsers, according to Macromedia), but Shockwave is still becoming an increasingly popular tool to use on Web sites. Shockwave is used for such applications as online jukeboxes, interactive games, and 3-D models.

media is easy for users to play because it doesn't take much effort on their part. "Streaming audio relieves the onus on the visitor," says Kip Piper, president of MTC Interactive, which develops commercial Web sites, because the user does not have to save large files to the hard drive. Instead, the site's host stores and manages the file.

Along with the changes in technology, the change in the Internet culture are contributing to a more widespread use of streaming media. For instance, consider the distance learning industry. According to Access Technology's Carroll, the market is at \$3.5 billion now, and it should grow to \$25 billion by 2003. Businesses, universities, and other organizations rely on online video and audio to transmit content, and those figures indicate there will be a significant increase in the use of streaming media. To see how distance learning works, visit The Bounty SCA Worldwide Knowledge Series (<http://www.bountysca.com/know/default.cfm>) and check out any of the topics.

Streaming media also is having a significant impact on the entertainment side of Internet culture. Dino Gravato, the Webmaster of Video Farm, which helps "put video into everyone's hands," says the Web is one big open marketplace. He says Internet citizens are realizing they don't need to be part of a major film company to produce video that can reach a wide audience; they can reach them through the Web instead.

You can create your own streaming audio and video clips in a variety of ways. How you go about creating these clips will depend upon why you want to place streaming media on your site. Typically, you record the video ahead of time and then convert it into a streamable medium. Aspiring filmmakers, for example, may want to shoot movies with a video camera and consult with a company such as Video Farm on converting the analog footage into digital format. If you are creating a streamable video for a community business, you may want to start by calling the local radio or television station to find out whether you can book studio and production time.



These two panels are part of an Adbusters animated GIF, which is a graphics file that displays a set of images in quick succession.

streaming video and audio, including RealProducer Plus, the \$149.95 tool for encoding and broadcasting streaming media. In addition, if you host your site yourself, you can also purchase the RealServer Plus. For more information, visit RealNetworks' Web site at <http://www.realnetworks.com>.

Another popular technology is Microsoft Windows Media. Users with the Windows Media Player (as with the RealPlayer, many systems come bundled with this software, and users can download it for free from the Microsoft Web site) can see the streaming audio and video created via Microsoft Windows Media Technologies 7, the latest version of the software. For more information, including current pricing, visit Microsoft's Web site at <http://www.microsoft.com/windows/windowsmedia>.

■ Animation. Lastly, let's look at a simple technology that is catching the eyes of Web surfers everywhere. **Animated GIFs** are graphics files that display a set of images in succession. The succession is fast enough that it simulates movement on a Web page. Web developers can program the images to endlessly loop for a continuously moving image, or they can program the images to appear a specific number of times and then stop.

Like the other tools discussed earlier, these have been around for a while. However, we are seeing more of these images lately. Mostly, designers are getting rid of the stock animated GIFs and replacing

them with their own clever, useful animations.

Jeff Harris, a Web site designer at Adbusters, which is a social activist site, says he employs a number of animated GIFs on the site because the files are small and almost everyone can see them. An example of one such animation is in Adbusters' promotion of World Car-Free Day: On a bright yellow background, a small black car drives across the screen and stops. A tiny bicycle pops out of the bottom of the car, the image rotates upside down, the car folds up, and the cyclist pedals off the screen. The whole sequence takes just a few seconds, and it was quick to put together using images the Adbuster art department had already created. You can see other such animations throughout the site at <http://www.adbusters.org>.

Animated GIFs are relatively simple to make; coming up with a nifty idea is probably the hardest part. Just follow this three-step process:

1. Create the image files. They should be about the same size, and you can use any of a number of graphics programs, such as Paint Shop Pro or Adobe Photoshop. (If you have a scanner, your scanning software will likely have a useful program bundled with it.)
2. Locate a GIF animation program. There are dozens on the Web. One good program is the Animagic GIF Animator (\$29; 416/489-7440 at <http://www.rtlsoft.com/animagic/index.html>) from Right To Left Software. The site's online tutorial, 30-day evaluation version, and links to resources can help turn your GIF from a static image to a lifelike one.
3. To allow others to view your creation, upload the image to your Web server and link to the file as you would any other file.

■ Remember The User. One thing to keep in mind when using any of the technologies covered is to know whom you're creating your site for. It doesn't matter if 92% of the world can see Flash if you're creating a personal site primarily for a distant relative with an ancient computer and a slow connection. Likewise, it doesn't matter if many consumers are using dial-up connections if you want to create a video for high-tech customers who primarily have broadband access. How technologically savvy your audience is may determine how many cool technologies you can use on your site. **[E]**

by Heidi V. Anderson

Free Web Hosting & Design Services

Build A Site Without A Cent

The advent of the Internet has made it possible for anyone and everyone to express themselves online. A few short years ago, having a Web site meant paying steep Web design and hosting fees. But online business models quickly shifted toward ad revenue, and up popped scores of companies offering free Web hosting to anyone who wanted to build a Web site.

Now it's your turn to make your mark on the Internet. And these days you don't need any creative or technical skills or even any money because you can take advantage of free Web hosting services and Web tools to help you build your own online kingdom.

If you've been online lately, you know that static text and clip art just don't cut it for

Web page design anymore. Don't fret, though, free hosting services know that most people don't have expert design and programming skills, so they continually expand their offerings to include the latest and greatest Web building tools. From animation and audio clips to streaming video and voice chats, you'll find it free online.

To get started, you need a server on which to host your site. If you're using a local Internet service provider, check to see if your package includes some free Web space. Many ISPs (Internet service providers) will give you a few megabytes of free space for personal Web pages.

If your ISP does not offer free Web site space, there are many other avenues you can pursue, and many of these services also

provide free Web tools to help you get your site up and running. We're going to focus on five major players in the free Web hosting market: Yahoo! GeoCities, Lycos Tripod, Lycos Angfire, Homestead, and AOL Hometown. Most of these companies have been around for a while and have grown and developed powerful Web building services along the way.

■ **Lycos Tripod.** Lycos Tripod (<http://www.tripod.lycos.com>) offers 50MB of free Web hosting space, as well as a wealth of powerful tools to help you easily add rich content to your site. There aren't any restrictions prohibiting business sites but be advised that Tripod supports this service by selling banner ads that appear on all sites, including the one you will build.

First you need to sign up for the service, which takes about two minutes. Be careful when you fill in the Member name, though, as this will be part of your domain name. (If you choose JohnDoe as your Member name, your Web site address will be <http://johndoe.tripod.com>.) Tripod will let you use a domain name you've registered and even offers a two-year deal on domain name registrations.

Once you join the network, you will have access to Tripod's Web building tools. The Tripod Site Builder is an online tool that lets you create your Web site without learning HTML (Hypertext Markup Language) or using special software. Just build your site using the templates provided. The Tripod FreeForm tool lets you build your site using HTML if you prefer.

You don't need to use these two options for creating your site, though. If you prefer to use another HTML program, such as Microsoft FrontPage or Adobe PageMill, or if you want to write your own HTML code in a word processor, Tripod does allow FTP (File Transfer Protocol) access to its servers for uploading your Web site. Should you choose to use FrontPage, make sure you enable the FrontPage server extensions by going to the My Account tab and checking that preference.

To enhance your site, Tripod allows for CGI (common gateway interface) and Java scripts, and it even provides a library of scripts to use. The library includes scripts for counters, slide shows, scrolling text, rotating banners, and CGI form handlers. And when you really want to get fancy, the Tripod ShowMotion software lets you create your



own streaming movies and presentations, and the RealSlideshow features let you create streaming slideshows.

If that kind of thing is over your head, and you'd rather stick to simple HTML tools to enhance your site, the htmlGEAR section offers basic add-ons for your site, including polls, feedback forms, guest books, and random text tools. Other simple add-ons reside in the Tripod Animation Factory, which offers more than 30,000 animations and Web designs for sprucing up your site. You can even edit the images for your own personal use.

If your goal is to build a great Web site and put a few dollars in your pocket in the process, Tripod offers three revenue-generating programs.

The Builder Bucks program offers two payment levels. As mentioned earlier, the free Web space means Tripod will serve its ads on your site. However, if you have a high-traffic site, Tripod spreads the wealth from those advertising dollars. If your site serves 100 to 999 Tripod ad impressions a day, Tripod will pay you 50 cents per 1,000 impressions. If you serve more than 1,000 ads on your site each day, you will receive \$1 for every 1,000 ad impressions.

The Commission Central program lets you include ads from Tripod affiliates on your Web site. When visitors click to those companies from your site and spend money, you will get a commission. There is no minimum daily traffic requirement to be eligible for this program.

Lycos Auctions are another way to make money on your site. Simply use the auction tools to set up and maintain your own auction.

■ **Lycos Angelfire.** Like Tripod, Angelfire (<http://www.angelfire.lycos.com>) has become a member of the Lycos network. You will see many similarities between Tripod and Angelfire because many of the building tools are from companies that also are part of the Lycos network. One big difference, however, is Angelfire starts you with 5MB of storage space, although, you can get up to 30MB if needed.

The sign up process is nearly identical; however, the username you select doesn't necessarily become part of the Web address for your site. Once you pass the first set of

informational forms you are asked to create your Web address. Angelfire offers two choices; both start with <http://www.angelfire.com>. Then, you have two choices for the next portion of your URL: States or Topics. Select one from the drop-down menus, then type whatever you want for the last portion. There is a limit of 20 characters, but you'll probably want to keep your URL as short as possible anyway. The Web address you will end up with is pretty awkward. However, Angelfire does offer a domain forwarding service so you can use a domain such as www.yourname.com as your Angelfire address.

Upon sign up, Angelfire prompts you to build your site using the WebShell templates it provides. Like Tripod, you can create your Web pages using another HTML editor, including FrontPage, and upload the files via FTP. You will find many of the same Web tools as Tripod.



The Tripod Site Builder helps you build your site using a series of templates.

Angelfire offers HTML tools from htmlGEAR, animations from the Animation Factory, and the same CGI and Java scripts as are available in the Tripod script library. You also have access to Angelfire's Image Gallery, which contains a multitude of images for your site; the Angelfire Arcade, which contains fun games you can play and add to your site; and Angelfire's Custom Cursor section, which includes hundreds of cursors to add to your site.

For driving more traffic to your site, Angelfire offers a banner exchange program called SmartAds. It works like this: You agree to display ads for other Lycos network sites on your Web site, and ads for your Web site will appear on other Lycos network Web sites. Keep in mind, however, that Angelfire will be serving its paid ads on your site as well to support the free service.

Angelfire also offers to help put cash in your pocket with the Commission Central affiliate program. It does not, however, offer the Builder Bucks program or the auction features that Tripod does.

For a basic site, Angelfire is fine. But of the two Lycos options, shorter URLs, streaming media options, and more revenue-generating programs make Tripod a better deal.

■ **Homestead.** Homestead bills itself as "the easiest way to build a free Web site," and it might just be right. Directly from the home page (<http://www.homestead.com>) you are presented with seven subject-oriented options for your site: Small Business, Clubs, Hobbies, Teens, Events & Holidays, Personal, and even a blank template. Each type of site offers different featured elements, which are available using a drag-and-drop interface. For example, you will find e-mail marketing and shopping

cart tools for promoting and selling merchandise if you choose the Small Business option. If you choose the Teen option, you can use Live Radio, Custom Cursors, and Instant Messaging tools on your site.

Select the most appropriate category option, and you will have several style templates from which to choose to get the building underway. With the help of these templates and the drag-and-drop elements, you can literally have your site built in a matter of minutes. You can choose to build your site without the templates, using HTML. However, Homestead does not let you import the home page of your site, so you will need to build that page using Homestead tools. If you're planning on building your Web site with FrontPage, consider a different free hosting service; Homestead does not offer the FrontPage server extensions that are needed for FrontPage sites.

Homestead offers up to 16MB of free server space for your Web site. That's not a great deal of room, especially compared to the 50MB available at Tripod, but it will be enough for a small but comprehensive site. If you plan to load your site with tons of pictures, you might want to look at another service that offers more space. One nice difference that makes this service attractive to businesses is Homestead does not serve its banner ads on your site. Homestead does, however, display a

small bar at the bottom of each page offering free Web pages.

Each category offers its featured tools, but regardless of which style template you choose, you will find powerful Web tools in the Home Stead Element Gallery, including basic clip art, buttons, counters, audio/video, instant messaging, and shopping cart tools. You'll find everything you need for a fantastic Web site. And if that isn't enough, the Power Tools section includes tools for accepting credit card payments for merchandise, affiliate programs for earning money with your site, and a search engine submission for driving more traffic to your site.

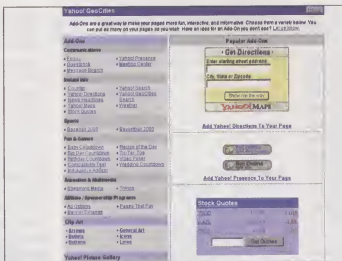
To get started, click the Signup button. First choose your Web site's address (which will initially be <http://www.whateveryouwant.homestead.com>), then enter your personal information and you're on your way. You will then be presented with a list of topics to help you figure out the best template to fit your needs. If the Homestead domain is too long, don't worry; Homestead offers a domain registration service so you can use your own registered domain name as your Homestead Web site address.

Continue answering the template questions and inputting your specific information to set up the site shell. Once you're done with that, the animated QuickStart tutorial will help guide you through the rest of the building process.

The construction interface will appear with the style and personal information you entered on the right, and a tool pallet on the left to add new elements. At that point, it's just a matter of adding the elements you want and saving your changes.

The Homestead site is easy to navigate using the tabs that line the top of the page. Homestead continually adds new features for its users, so be sure to check the What's New tab to see the latest offerings.

Homestead's free Web site service is perfect for the person who wants a site, but does not want to spend a lot of time learning the technical information that typically goes along with building one. And the lack of banner ads makes this an attractive offer. The business-style templates offer a quick and inexpensive way to get a small-business



Yahoo! GeoCities offers many free add-on elements for your Web site, including the Yahoo! Maps feature, stock tickers, clip art, counters, guest books, and the latest news headlines.

online, but businesses that want a serious online presence and comprehensive e-commerce site should look beyond free hosting services.

■ **Yahoo! GeoCities.** GeoCities was hosting 4.6 million free Web sites when it teamed up with Yahoo!, one of the first and largest search engines, in June 1999. Getting the power of Yahoo! behind the service allowed GeoCities Web builders more integrated features, such as weather information, news headlines, a search engine, mapping tools, and communication tools.

Of the free hosting services, Yahoo! GeoCities offers the least free disk space for your Web site. You have up to 15MB of free space, with the option to pay \$4.95 per month for the GeoPlus membership, which includes an additional 10MB of space.

Yahoo! GeoCities, like the other free hosting services we've looked at, offers you the standard tools: page building wizards and templates, clip art, counters, guestbooks, and money-making options. And if you choose to pay for the GeoPlus membership, you will have access to streaming media, Java, and CGI script libraries; comprehensive site statistics; and a dedicated support team to answer questions.

But although the disk space is small and the free tools are limited, there are some advantages to using the Yahoo! GeoCities free hosting service. Yahoo! is one of the best-known search engines online, which isn't a bad network to belong to when you're looking to push

traffic to your site. Should you choose to use the Yahoo! GeoCities free page, more potential visitors are likely to find you when they perform searches on Yahoo!

And while the free Web elements are not as numerous as those offered by Tripod or Homestead, you do have access to more dynamic content elements from the Yahoo! networks, such as stock tickers, news headlines, and mapping and communication tools.

To get your free page, you need to be a registered member of the Yahoo! network. If you already have a MyYahoo! account, you're well on your way. If not, you will need to register. The username you select during registration will be your Yahoo! GeoCities Web address, so make thought before you fill in the space you're registered with Yahoo!, you'll need to sign up for the free site. Your Web address will be <http://www.geocities.com/username>.

You can choose to use the Page Wizards or Page Builder to help you design a Web site built from templates, or you can use the Advanced HTML editor to code your site. Like Tripod and Angelfire, Yahoo! GeoCities offers the Microsoft FrontPage server extensions if you prefer to use FrontPage to build your site.

And, like Tripod and Angelfire, GeoCities supports the free service by serving ads on your site. By default, ad squares and pop-up ads will appear. You can choose to add the GeoGuide to your site instead, which will replace the ads.

Yahoo! GeoCities is a fine service for small personal and clubs Web sites. Businesses, though, should look elsewhere—especially because no domain-forwarding service is available to let you use your own domain name as your Web address.

America Online Hometown. Members of America Online Hometown (<http://hometown.aol.com>) have 12MB of free space for a Web site. Registering with AOL Hometown is free, and you don't need to be a member of the AOL dial-up service to get your free site; just pick a screen name and password, and you're on your way. Because AOL offers so many services, including its dial-up Internet access and

Instant messaging, finding a screen name that hasn't been taken and actually makes sense might be a chore.

AOL Hometown provides two simple options for building your Web site: 1-2-3 Publish and Easy Designer. 1-2-3 Publish offers templates from which to build. Easy Designer is a collection of drag-and-drop Web page tools that let you build your site without learning HTML but gives you more flexibility in design. If you're so inclined, you also can use straight HTML coding or even another HTML editing program, although FrontPage server extensions are not available at AOL Hometown.

To help add flair to your site, AOL Hometown offers basic building tools. However, depending on which design option you use to build your site, some of the tools may not be available. Some standard building tools include clip art, pictures, sounds, animations, counters, guestbooks, chat rooms, password protection, and money-making programs. There isn't much beyond the basics here, so if you're looking for something with advanced elements, you're going to need to look elsewhere.

To help guide you through the design process, AOL offers a series of general Web design tutorials and classes. These tutorials will help you learn how to add images, create

consider changing your screen name for the Hometown portion of AOL.

AOL was created with the intention of making the Internet as simple as possible for users, a goal that AOL has obviously kept in mind with the Hometown Web space service. The tools and space offered by AOL are quite limited compared to other free Web hosting services, but it is free and easy to use.

■ **Other Hosting Options.** Although you can use any of the free Web hosting companies we've talked about to build and host your site, you may be looking for services that are subject-specific. Several companies offer Web sites specifically for families to keep in contact across the miles, such as MyFamily.com (<http://www.myfamily.com>) and Family Shoebox (<http://www.familyshoebox.com>). And if you want a place that hosts only church Web sites, check out ChurchesOnline (<http://www.churchesonline.com>) and OurChurch.com (<http://www.ourchurch.com>).

We've by no means covered the entire range of free Web hosting services, but if none of these mentioned trip your trigger, check out FreeWebSpace (<http://www.freewebspace.net>) and 123 FREEPAGE.COM (<http://www.123freepage.com>). These are two good indexes of free Web hosts, so you should be able to find a suitable host from these pages.

■ **Free Tools.** Regardless of which service you use to host your site, you're not locked into using only the tools and content it provides. There are a wealth of Web sites out there to provide you with content, images, scripts, and virtually any Web site tool you can think of.

Clip art. When you are searching high and low for the perfect little graphic for your Web site, you're going to want to hit some of the Web's best clip-art collections. Clipart.com (<http://www.clipart.com>) is more like a clip-art portal, and it's a great place to start. It includes links to hundreds of free clip-art and animated-GIF sites. Good sites to check out include Barry's

Clip Art Server (<http://www.barrysclipart.com>) and AAClipArt.com (<http://www.aaclickart.com>).

Content and Web tool collections. To build a Web page, you need more than just a host server, you also need fresh content. If the content on your site doesn't change often, visitors are unlikely to come back. Although you may have good intentions of adding new content to your site every day, it won't be long before you forget for a week or more. That's where free dynamic content can come in handy, such as daily news, jokes, quotes, weather forecasts, stock tickers, etc. You simply add the coding to your site once, and the content is automatically updated for you every day.

There are thousands of sites that will let you add their content to your site for free, but rather than seeking each out individually, we'll show you a handful of these sites that have collections of free content. Many of these collections also include free Web tools that your Web hosting service may not offer. Some good ones to check out are: Bravenet Web Services (<http://www.bravenet.com>); AdBility (<http://www.adbility.com>); InterestAlert (<http://interestalert.com>); 4all-free (<http://www.4allfree.com>); and free-tools.com (<http://www.free-tools.com>).

Scripts. Even though your free hosting service offers a plethora of cool tools for your site, it may not be enough for your needs. If you're comfortable using Java, CGI, and ASP scripts, you can find thousands of pre-written scripts on the Web that you can customize for your needs. Check out these resources for forums, shopping carts, counters, polls, etc.: CNET's Builder.com (<http://www.builder.com>), The ASP Resource Index (<http://www.aspin.com>), Earthweb JavaScripts (<http://javascripts.earthweb.com>), and ScriptSearch (<http://www.scriptsearch.com>).

■ **Save Your Pennies.** There are scores of free resources you can turn to when building your Web kingdom. Even though there are some limits to what the services provide, new features are being added all the time so be sure to check. With the services and tools we've shown you, there isn't any reason you can't build an outstanding Web presence without spending a dime. **LE**

by Meredith Witaliski



This professional-looking business Web site is hosted on Homestead. Notice the Homestead bar at the bottom of the page.

animation, use frames, write META tags, and even scan images. You do need to be a registered member of AOL to use these, though.

Your Web site address is not negotiable because it uses your screen name: it's <http://hometown.aol.com/yourscreenname>. Hopefully you chose something appropriate when you signed up with AOL. If not,

What's In A Name?

Domain Naming System Adapts To Changes



language, all these parts merge into one URL that translates into the numeric code that tells your Web browser where you want to go on the Internet's network of computers.

The only characters that can make up a domain name are letters, numbers, and a hyphen. You can't use special characters (such as &) or spaces in a domain name. Domain names can be up to 26 characters long. Four of those 26 characters are the domain extensions at the end of the name. These domain extensions are called TLDs (top-level domains). So, in the domain name "yourname.com," yourname is the SLD (second-level domain) and .com is the TLD. TLDs signify what kind of company, organization, or country your domain name originates from.

There are two types of TLDs: country code and generic. Two-letter country code TLDs (ccTLD), such as .uk for United Kingdom, were created for use by various countries. There are about 250 ccTLDs, and each country's government manages its own. For a complete list of ccTLDs and their administrators, go to <http://www.iana.org/ctld/ctld-whois.htm>.

The three-letter generic TLDs (gTLD) are for public use and represent the intended function of its related site. The few, but widely recognized, gTLDs currently in existence include .com (commercial), .net (gateway or host), .org (non-profit organization), .gov (government agencies), .edu (educational institutions), .mil (military), and .int (international organizations). The first three gTLDs—.com, .net, and .org—are unrestricted, which means anyone in the world can register for these despite their descriptions. The other gTLDs are restricted and require approval from the organization managing that gTLD. (More information on these organization is available from the Internet Assigned Numbers Authority at <http://www.iana.org/gtld/gtld.htm>.)

With the explosion of the Internet over the last few years, demand for domain names has

soared, but the choices for TLDs have barely changed. Many users and organizations would like to see more gTLDs offered to provide more options and better choices to domain name holders. The organizations that administer Internet names have themselves been overhauled in the last few years and now are finally ready to address domain naming conventions. However, progress does not stand still; the private sector has come up with a few creative solutions to address the Internet's changing landscape.

■ **More Names Needed.** The lack of options for gTLDs is presenting a few problems. First, fewer domain names are available under the three, unrestricted gTLDs that exist. There is dispute over just how serious this shortage is, but the fact remains, fewer names are available. As more domain names are used, it will become more challenging for an organization to get a relevant domain name.

For instance, a recreation center looking for a URL might find that "recreationcenter.com" is taken by a video arcade, "recenter.com" is taken by a record store, and "recenter.org" is taken by a recycling center. As a result, the recreation center must be more creative in its name selection and choose a name similar to: letsplay.com. That will work, but now the name is not as intuitive and not as easy for users to remember or guess. Businesses and organizations often opt to use a completely irrelevant word because it is short and memorable. Some businesses even consider altering their name altogether if their business is dependent on the Internet.

Virtual Internet, a London-based Internet firm, reports that more than 20 million domain names have now been registered worldwide, with nearly a quarter of a million new names being registered each week and nearly 80% assigned to the .com gTLD.

Secondly, more differentiation among gTLDs can alleviate some other issues with the Internet, such as restricting access to minors and name infringements. For instance, if all adult-content sites were forced to use a domain name like ".xxx," screening access to these sites would be easier (although those site's owners wouldn't care for this). Or, by using a gTLD such as ".name" for personal sites would prevent cyberpirates from registering a site under a famous person's name, publishing unsavory Web pages, and releasing ownership of the domain name only for a large sum of money.

The Web address, or URL (universal resource locator), is vitally important to many businesses, organizations, and even individuals (just ask the celebrities currently in dispute with Web site owners that use their names). A URL embodies one's identity on the Internet. People will use it to find you and exchange information or do business. The URL you select is important because when it is easy to remember and relevant to your business or organization, others are more likely to use it.

A domain name refers to the latter part of a URL. For example, if your URL is <http://www.yourname.com>, then the "yourname.com" part of the URL is officially called its domain name.

The "http://" portion of the URL refers to Hypertext Transfer Protocol, the standard for how computers exchange information over the Internet. The "www" indicates that the site is part of the World Wide Web, yet unlike "http://," not every URL has "www" as part of its Internet address. Essentially, in computer

More gTLDs would provide more naming choices, make sites easier for users to find, and allow more control over how sites are accessed and used. Those opposed to new names argue that there is more possibility for consumer confusion and more opportunity of increased trademark infringement. They argue that it will be more technically complex to manage the domain name system and its registries with a larger number of TLDs and frequent additions. Plus, it will be more difficult for trademark holders to protect their trademarks

How To Get A Domain Name

The first step is to see if the name you want is available. You can find this out from any accredited registrar such as Network Solutions (<http://www.nsi.com>) or Register.com (<http://www.register.com>). For a list of the currently operating accredited registrars, go to the InterNIC site (<http://www.internic.net/alpha.html>) or The Internet Corporation for Assigned Names and Numbers (ICANN; <http://www.icann.org/registrars/accredited-list.html>).

Many registrars have a search function where you can type in the name you want and the registrar lets you know if it is available. If the name you want is available, sign up for it at the registrar's site. The fee to register a domain name is \$35 per year.

You'll need to provide address information for an administrative contact (the person who owns the domain name), a billing contact (for renewal), and a technical contact (the person who maintains the actual server). The technical contact will probably be someone at your ISP (Internet service provider), so you'll need to get this information from them before registering. In addition, some ISPs may also charge you setup fees.

Or, you can skip all the work and ask your ISP if it will register a name for you. Many ISPs will do everything needed to set up a domain name for their customers. Just make sure you are the one in control of the domain name by using the WHOIS Lookup feature at <http://www.nsi.com> and making sure you know the domain password. ☐

if they have to police a large number of TLDs. Despite the arguments, the preference among Internet users, experts, and authorities is for adding more TLDs to the domain name mix.

■ **Masters Of The Domain.** The regulation of the Internet has gone through several changes in the past two years. Network Solutions Inc. (NSI; <http://www.nsi.com>) was once the sole registrar of domain names and maintained the sole registry of these names. Under contract from the Department of Commerce, NSI helped create InterNIC, which was the integrated network information center developed to keep a list of domain names (the registry) and dole out domain names (as a registrar) to companies and individuals who requested them.

The other major regulator was the Internet Assigned Numbers Authority (IANA; <http://www.iana.org>). Also contracted by the government, IANA provided technical management of the Internet's address system by allocating blocks of numerical addresses (that are eventually linked to domain names) and assigning values for protocols that perform various Internet functions such as e-mail.

In response to the growing outcry for more gTLDs, an Internet Ad Hoc Committee (IAHC) proposed six new gTLDs: .store, .web, .arts, .rec, .info, and .nom. These domains were supposed to be put into service in 1998, but before that could happen, the Department of Commerce dissolved the IAHC and made other organizational changes as a more encompassing solution to Internet management.

In 1997, as part of the "Framework for Global Electronic Commerce," President Clinton directed the Department of Commerce to privatize the management of certain aspects of the domain name system (commonly called DNS) to increase competition and facilitate international participation. After several studies and much public input, the Department of Commerce created the Internet Corporation for Assigned Names and Numbers (ICANN; <http://www.icann.org>).

This non-profit, private-sector corporation is run by a board selected from the Internet population at large and exists to coordinate the stable operation of the Internet's server system. The Department of Commerce transferred much of the Internet administration to ICANN in October 1998, and now ICANN oversees policy governing the assignment of Internet domain names, IP (Internet Protocol) addresses, and the IP protocols—responsibilities previously held by IANA.

Plus, ICANN has the authority to accredit more companies as registrars who assign domain names, eliminating NSI's position as the sole registrar and requiring it to share its master registry with other registrars. NSI has also had to phase out its use of the name InterNIC, a service mark of the Department of Commerce, and now operates only as a private company.

ICANN has several propositions on the table for modifications to the domain name system, as well as monitoring innovations instituted by private businesses on the Internet.

■ **New Developments.** ICANN wanted to come up with new TLDs in "a measured and responsible manner," as mandated by the Department of Commerce. In July 2000, ICANN decided that the best method was to open the process up to the public. During September 2000, ICANN took proposals for recommended new generic TLDs.

Successful applicants would not only create, but also operate the gTLD, so proposals could only be submitted by a select few with the resources for this type of endeavor. The lengthy proposal had to detail how the company would organize and run a registry to issue domain names and how its gTLD proposal would broaden choices available to Internet users. To further prove their sincerity, applicants had to submit a \$50,000 fee.

A two-week public comment period took place in October, followed by a review by the ICANN Board of Directors. The Board's decisions are scheduled to be announced in mid-November 2000. Afterward, the Board plans to negotiate agreements with the new sponsors by the end of December 2000.

Another interesting note is: Among those submitting a bid for a new gTLD is a consortium of Internet registrars that includes the number one and number two Internet registrars, NSI and Register.com. NSI has long been criticized for the amount of control it has had over domain name registration, but another member of the consortium feels its members have a vested interest in assuring that the registry providing the new gTLD will be well designed.

ICANN did not say how many gTLDs it will choose or how they will be used. It has expressed an interest in approving several different kinds of new gTLDs in order to create commercial, noncommercial, restricted, and unrestricted online communities. However, the short application period and controversial \$50,000 application fee limited the number of applications submitted.

Where To Stay Up To Date

This area of the Internet is constantly evolving to keep up with needs, trends, and demand. At the time we went to press, a few major changes for domain names were in the works. The following is a list of Web sites that provide updated information on the changes to domain naming conventions and regulatory bodies.

DomainIQ.com
http://www.domainiq.com

dotcom.com
http://www.dotcom.com

ICANN Watch
http://www.icannwatch.org

i-DNS.net International
http://www.i-dns.net

Internet Assigned Numbers Authority (IANA)
http://www.iana.org

The Internet Corporation for Assigned Names and Numbers (ICANN)
http://www.icann.org

The Official United States Domain Registry
http://www.nic.us

The ".us" ccTLD. The ccTLD of ".us" is used for organizations in the United States where location is a significant part of their identity. The recipients of this ccTLD tend to be branches of state and local governments and other public services such as school districts and libraries. The ".us" ccTLD is further divided into a hierarchy based on localities, as in: los-angeles.ca.us. The Information Sciences Institute of the University of Southern California (ISI-USC) administers the ".us" ccTLD registry (<http://www.nic.us>).

Businesses and individuals also can register to use ".us." Some in the Internet community have suggested actively promoting the use of the ".us" ccTLD to relieve some pressure for new gTLDs and resolve conflicts between companies vying for the same domain name. But

some commercial users and trademark holders find the current locality-based system too cumbersome and complicated for commercial use. In response, ICANN is currently investigating the best method for broadening the use of ".us" with the least confusion and the widest range of benefit. Suggested uses have included moving ".gov" and ".mil" TLDs into ".us" and incorporating street addresses into ".us" TLD addresses.

At the time this went to press, ICANN was accepting public input on the issue in order to draft a document on proposed methods for management and administration of the ".us" ccTLD.

Two-digit gTLDs. While waiting for Internet regulatory groups to add new gTLDs, another solution emerged. Top-level domain names such as ".ws," ".cc," and ".tv" are available to the public because they're actually country codes (for Western Samoa, Cocos [Keeling] Islands, and Tuvalu, respectively). Some Internet registrars have made agreements with these countries to sell the TLDs to businesses and individuals anywhere, making them, in essence, unrestricted gTLDs. Some registrars are even going a step further by making an effort to brand the TLD for specific purposes, such as ".tv" for television-related sites or ".ac" for academic sites. These TLDs function the same way as any other gTLD and may be considered a viable alternative if the ".com," ".org," and ".net" versions of gTLDs are already taken.

Multilingual names. Arabic is difficult to translate into Web addresses, as is Japanese, Russian, and a dozen other languages that use characters that are not standard in English. URLs, however, currently only use characters available in English. Some non-English sites use numbers rather than letters in the URL to overcome language barriers, but the Internet is global and millions of pages serve content to users who communicate in other languages.

To address this deficiency, the registrar NSI announced in August 2000 that it would start allowing multilingual domain names. Its test program would allow the registration of domain names in 55 languages and character sets including Japanese, Chinese, Korean, Arabic, and Hebrew. i-DNS.net International, which developed a method for the Domain Name System to recognize non-ASCII characters, will supply the technology for the test. The test is set to start during the fourth quarter of 2000.

ICANN has promised to watch the progress of this implementation to make sure it does not jeopardize the stability of the Internet. However, it supports the principle of internationalizing domain names.

■ The Ultimate Impact Of Changes.

Many Internet users, whether commercial entities, non-profit organizations, or individual users, have long expressed dissatisfaction with aspects of the current domain naming system. As the Internet grows exponentially, these problems are exacerbated. Several issues have been brought up repeatedly.

First, many want more TLDs to be made available. Competition is becoming fiercer for names as more entities register for new names.

Secondly, new solutions must look to address cybersquatting (the registration of well-known names with the intent of getting revenue from the sale of another's branded property) and cybersquatting (the practice of stockpiling domain registrations in bulk for future resale to the general public). There is no standard and economical resolution process for conflicts between trademark holders and domain name holders. The proliferation of lawsuits may create more chaos as antitrust law and intellectual property law is applied differently in different jurisdictions. As commercial success is increasingly dependent on Internet presence, more companies want a stronger and more formal management structure. Domain names increasingly have value—it should not be acceptable to register domain names on a first-come first-serve basis to parties that are not held accountable to the Internet community.

Finally, more Internet users outside the United States want a larger voice in Internet coordination, including naming conventions. New methods for name administration need to be stable with the current system, increase competition among name providers to allow better choices, and be governed by a body that's representative of the Internet community instead of single government agencies.

Changes in available domain names will certainly give entities more options for names, make it more difficult for cybersquatters and cybersquatters to profit, and possibly even make it easier to remember Web addresses.

Changes in the administration of domain names will hopefully lead to more competition and better services among registrars, better methods of remediation for infringement issues, and continued stability. ICANN appears diligent in its work to better regulate the Internet, but it is in its infancy. Time will show how well it meets the challenge. **15**

by Tracey Dishman Patterson

The Role Of XHTML & XML

Next-Generation Languages Improve Web Publishing

HTML (Hypertext Markup Language) is done: Done as in over and turn out the lights. Even so, writing a requiem for a language as youthful as HTML still seems strange, especially because the number of HTML-based Web pages grows by thousands each week.

HTML reached its final version, 4.01, on Dec. 24, 1999. According to the World Wide Web Consortium (W3C; <http://www.w3.org>), the organization responsible for navigating the future of Web standards, there is no current or anticipated work to enhance or extend HTML. Alas, HTML was cut down in its prime.

It isn't easy to architect the future. In fact, it isn't easy to understand what the architects are doing or why they are doing it. This is certainly the case with the W3C shoveling dirt onto HTML in favor of XHTML (Extensible Hypertext Markup Language) and XML (Extensible Markup Language). In this article, we'll shed some light on these events, and along the way, provide a glimpse into the future.

First, we'll assess the current situation and identify problems with the present state of the Web and HTML. Next, we'll introduce and explain two solutions to those problems: XHTML and XML. Having laid this foundation, we finally look at events yet to come and answer the all-important question: "So, what does this mean to me?"

■ **HTML Weaknesses.** On the surface, HTML continues to enjoy unbridled success. Web pages are sprouting up like weeds, and the amount of information and the number of services available online continues to expand in wonderful, unexpected ways. In short, the World Wide Web continues in its role as an awesome, world-changing phenomenon. But if you look deeper, there are problems. To summarize: HTML is too big, too messy, and too simple. These characteristics aren't as contradictory as they might seem.

Too big? HTML, despite its youthful age, is suffering from gout, a disease frequently associated with success and brought about by the competition between Netscape Communications and Microsoft. Each browser developer spent the later part of the '90s racing to introduce proprietary extensions into HTML so that their browser would have the best set of bells and whistles. The fallout? HTML has so many features now that browsers must consume an enormous amount of memory to support them all.

</table>. If the row tag appears outside of a set of table tags, most browsers let the error slide. HTML also doesn't require that all tags have a matching end tag, which makes it monumentally more difficult to write HTML processing programs.

Too simple? Definitely. This is the most fundamental HTML fault, but it's also the reason for its success. HTML was designed to be a simple mechanism for describing the format of a document; it has nothing to say about the document content. So, although it is fine for describing paragraphs, headings, and bold fonts, it completely ignores the information contained in a document, such as the subject of a page or paragraph. We'll analyze the idea of content more in the section about XML.

■ **Enter XHTML.** During 1999, HTML 4.0 was recast in XML, thereby creating XHTML 1.0, which is now a W3C recommendation. Why? According to the W3C, its work on XHTML "helps create standards that provide richer Web pages on an ever-increasing range

of browser platforms, including cell phones, televisions, cars, wallet-sized wireless communicators, kiosks, and desktops." This is an important consideration. Due to the problems discussed above, HTML is not appropriate for devices other than desktop computers. Clearly, few of the smaller platforms are going to be able to run a 20MB (megabyte) browser program. The W3C is looking forward to the day when desktop computers no longer host the majority of Web browsers.

XHTML is, in the W3C's own words, "a family of current and future document types and modules that reproduce, subset, and extend HTML." Let's analyze this statement and break it down. A family

indicates that there's more than one document type. XHTML takes big, unruly HTML and carves it up into a set of modules that describe different features (basic formatting, tables, forms, frames, etc.) that can appear in the document.



Too messy? One problem with HTML is that browsers have been very forgiving by making a great effort to handle structurally unsound pages. For example, in HTML, a table row tag is <tr> and belongs between a start table tag, <table>, and an end table tag,

W3C World Wide Web Consortium
Leading the Web to the Next Potential...

The World Wide Web Consortium (W3C) develops standards, technologies, guidelines, protocols, software, and tools to further Web as a global medium to connect computers, networks, and people around the world. For more information, visit www.w3c.org.

Category	Item
DOM Level 2 Working Draft Published	DOM Level 2 Core
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	DOM Level 2 Style
	DOM Level 2 View
	DOM Level 2 XPath
	DOM Level 2 XML
	DOM Level 2 XSL
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	DOM Level 2 XSL-FO
	DOM Level 2 XSL-EX
XHTML Events Working Draft Issued	XHTML 1.0
	XHTML 1.1
	XHTML 1.2
	XHTML 1.3
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	XHTML 1.5
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	XHTML 1.7
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	XHTML 1.9
The Semantic Web Keynote at XML World 2000	XML World 2000
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XML Transformation Requirements Published	XML Transformation Requirements
	XML Transformation Requirements
	XML Transformation Requirements
	XML Transformation Requirements
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The World Wide Web Consortium (W3C), founded in 1994, has become a recognized authority for developing common protocols and unified Web standards.

These modules provide subsets for parts of HTML. This means that less powerful devices such as cellular phones can only support a particular subset of XHTML, and Web pages can automatically be scaled back to conform to the subset. By reproducing HTML, XHTML becomes a successor to HTML, making it easy for Web browsers to display XHTML documents. Since XHTML is, by design, a set of languages created in XML, let's look more closely at XML.

■ XML's Problem-Solving Skills. Before defining XML, let's focus on the motivation for XML. Here's the problem: People are smart; computers are dumb. When you search for a stock quote online, you want to get the information you seek no matter which source you use. So you take the visual hints provided by your browser's presentation of various documents and extract the information you want. But when a program tries to gather the information, unfortunately, the presentation and formatting clues are not very helpful. The program could be written to expect a specific format, but that strategy comes at a big cost: When the format changes, then the program's data-gathering process doesn't work.

For example, a program looking for the words "last price" might assume that the first digits following those words represent the price. This process doesn't work when the words "last price" change to "closing price."

Now you know the problem XML is supposed to solve. There are several possible

ad-hoc solutions around this problem, but they require significant coordination between the information producer and the consuming program. XML is a general-purpose solution. It is hard to capture the essence of XML in a simple definition, but here is one way to view it: XML is a set of rules that describe how to build a class of data objects ("think" documents) that can be easily processed by both humans and computers. In this article, there is only enough room to scratch the surface of XML. You'll find a good reference to XML at *The Introduction to the Annotated XML Specification* (<http://www.xml.com/xml/xml.html>), and the resources at XML.com (<http://www.xml.com>) are also helpful.

The power within XML enables the Web to move into the next generation where documents include the vital third ingredient: information about their content. With the combination of XML and HTML, three components come together: the data itself; instructions about how to display and format the data; and information about what the data is and how it is structured in the document.

The possibilities for using data in relation to document content are so broad and so vast that nobody can conceive of what the Web will evolve into over the next decade. Here is a simple example: At present, the Web is terribly difficult to search with precision. Most words appear in a great number of contexts, and

mark of a good tool is that its creator is surprised by the uses people find for it. XML is such a tool.

■ What Does This Mean To Me? The fact is that, unless you are actively producing Web content, the transition from HTML to XHTML is a nonevent. Your browser will continue to display HTML pages and should already render XHTML pages. In the future, you'll find cellular phones and personal organizers viable platforms for interacting with the Web as more and more people start to adopt XHTML. Given that browsers for the XHTML basic subset can be much smaller than today's Web browsers, the future for non-PC-based access to online information looks bright.

If you are developing Web content, it is not difficult to switch from HTML to XHTML. There are a few simple rules to follow. Most importantly, you must use XML syntax to create XHTML. This boils down to a few additional rules to incorporate, such as adding a closing tag for every opening tag, quoting all attribute values (for example, using `<table border="3">` instead of `<table border=3>`), and making tags case sensitive.

You can find more information about this by visiting the W3C site or searching for one of the many XHTML tutorials available online. You can also download a handy program called HTML Tidy from the W3C that will convert your existing HTML into fully conforming XHTML. This program is available at <http://www.w3.org/People/Raggett/tidy>. Just click the Download Tidy link, and then choose your operating system. Instructions for installing the program depend on your operating system.

XHTML and XML are the juncture where the Web of today links to the Web of the future. The architects at the W3C are diligently laying the groundwork for a more interactive and structured World Wide Web. It isn't easy to bid adieu to an outrageous success like HTML, but

the promise of tomorrow depends on the strength and foresight of today. [E]

by C. Reid Turner

The screenshot shows the XML.com homepage. At the top, there's a navigation bar with links like 'Home', 'About', 'Contact', 'Privacy', 'Terms', 'FAQ', 'Help', 'Links', 'News', 'Events', 'Jobs', 'Partners', 'Sponsors', 'Advertise', 'Feedback', 'Search', 'XML.com', 'XML.com', 'XML.com'. Below the navigation bar, there's a large banner for 'MSXML Conformance Update' with a 'Download' button. To the right, there's a section for 'XML.com' with a 'Click Here' button. At the bottom, there's a section for 'XML.com' with a 'Click Here' button.

You'll find numerous helpful resources at XML.com, including the latest industry news and a Getting Started area for new users.

therefore, they appear in numerous unrelated documents. By encoding Web content in XML, search engines of the future will be able to recognize the word "heart" in a medical context, a literary context, a card game context, and a sports context. It is said of software that the

Glossary

ASP (Application Service Provider)—

Provides business applications to customers over a network. Instead of having to install, upgrade, and maintain an office productivity suite, for example, a business could outsource an office suite from an ASP. ASPs charge a monthly fee for their software, but manage all the administrative tasks, allowing companies to drastically cut back on their information technology department. Of course, companies lose control of some aspects, including what version number of an application they are using.

Boolean—(Pronounced BOO-lee-un.) An adjective describing an expression that results in a value of either TRUE or FALSE. Named for mathematician George Boole, the word describes a common system of logic using mathematical expressions. It uses a defined set of operators such as AND, OR, NOR, and NOT. Any expression that contains relational operators such as the more than (>) sign are considered Boolean, because of the result being either TRUE or FALSE. Boolean expressions are used extensively in search engines on the World Wide Web.

broadband transmission—Communication in which the wire or line can transmit several data streams simultaneously. One example is the coaxial cable used in cable television systems, which carries multiple channels at once. More recently, broadband has come to describe high-speed data transmission, especially over the future Internet, sufficient to carry live video on demand.

CDMA (Code-Division Multiple Access) —

A type of digital wireless network that is popular in the United States. CDMA networks use the entire frequency spectrum available to them instead of assigning each user a specific channel, which is what TDMA (Time-Division Multiple Access) networks do. CDMA devices encrypt data and use a special digital code to keep data streams separate. CDMA is most popular in the United States, but it is still competing with TDMA and GSM (Global System for Mobile Communications) digital wireless networks.

DSL (Digital Subscriber Line)—

Technology used to transmit digital data on regular copper phone lines. DSLs can be used to

provide connections to the Internet or LANs (local-area networks) or for videoconferencing. The technology differs from ISDN (Integrated Services Digital Network) lines in that it can send analog and digital signals over the phone line. ISDN is digital only and has to convert analog voice phone calls to digital signals. With DSL, the analog voice phone calls and digital signals can coexist on the same wires.

GPS (Global Positioning System)—

A network of satellites that helps users determine their location on Earth. With the right software and a GPS modem/receiver, anyone can establish a connection to these satellites, run by the U.S. government, to establish his or her exact location on a software-based map, usually within 50 to 100 feet. GPS systems are useful both for outdoorsmen and drivers trying to find their positions on a street map. The satellites continuously transmit radio signals as they orbit Earth. A GPS modem/receiver secures signals from three or more satellites to calculate its position. Locking onto a fourth satellite enables users to calculate altitude, which is handy for airplanes and users in mountainous areas.

ISDN (Integrated Services Digital Network)—

A telecommunications network that allows for digital voice, video, and data transmissions. ISDN replaces the slow and inefficient analog telephone system with a fast and efficient digital communications network. ISDN lines contain two channels: a B channel, which has a 64Kbps (kilobits per second) data transmission rate, and a D channel, which has either a 16Kbps or 64Kbps transmission rate. When the two lines are used together, transmitted data can travel at 128Kbps.

plug-in—Scripts, utilities, or instructions that add to the functionality of a program without changing the program's base code. Plug-ins provide a way to add functionality to an application without completely upgrading. Applications that can accept plug-ins often have a built-in way to accommodate them. Two common applications that use plug-ins are Adobe Photoshop and Netscape Navigator. The Macromedia Shockwave plug-in, for example, allows special animated World Wide Web content to be displayed in Navigator. With Photoshop, plug-ins can

contribute special effects and filters that weren't included in the original program.

push—

To send information over a network to a computer without a computer request. Most information is "pulled" from networks, such as the Internet by users who see information and request it by a hyperlink, for example. With push technology, users subscribe to an information delivery service, which then pushes the desired information to the user on an agreed-upon schedule.

server—

The control computer on a LAN (local-area network). The server controls software, access to printers, and other parts of the network. The server is usually accompanied by workstations that share the main system's resources. A network may have more than one server. A server may be dedicated, meaning its sole purpose to be the server, or nondedicated, meaning it can be used for basic computing in addition to acting as the server.

streaming—

Audio or video, transferred over a network, that plays dynamically as the content is downloaded, giving the user the impression of watching television or listening to the radio. To avoid interruptions due to network problems, a few seconds of streaming content is usually buffered on the receiving PC. Unlike sound clips or video files, streaming content is open-ended, with no set beginning or end. There are several formats for streaming audio and video, the most common being RealAudio, with Microsoft's NetShow making inroads. Streaming content is primarily used on the Internet, especially by radio stations.

T1—

A type of data connection able to transmit a digital signal at 1.544(Mbps). T1 lines often are used to link large computer networks together

XML (Extensible Markup Language)—

Web page design specification that lets the designer tailor the formatting tags in his or her document. Developed by the W3C (World Wide Web Consortium), it gives the designer more flexibility than HTML (Hypertext Markup Language). XML is a subset of SGML (Standard Generalized Markup Language).

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